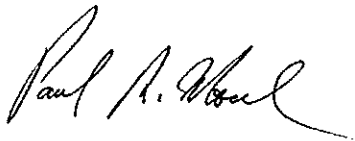


STATE OF NEW JERSEY)
)
)
COUNTY OF CAMDEN)

VERIFICATION

PERSONALLY appeared before me, Paul R. Moul, who being duly sworn states: That he is the Managing Consultant of P. Moul & Associates; that the testimony attached hereto as Testimony of Paul R. Moul is based upon information that he believes to be true and correct.



Paul R. Moul

Sworn to before me this
5th day of November, 2010



Ruby Marie Tucker

My Commission Expires:

BEFORE
THE PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA

LOCKHART POWER COMPANY

Docket No. 2010-181-E

Direct Testimony

of

Paul R. Moul, Managing Consultant
P. Moul & Associates

Concerning

Cost of Equity

Lockhart Power Company
Direct Testimony of Paul R. Moul
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INTRODUCTION AND SUMMARY OF RECOMMENDATIONS

Q. Please state your name, business address, and occupation.

A. My name is Paul Ronald Moul. My business address is 251 Hopkins Road, Haddonfield, NJ 08033-3062. I am Managing Consultant at the firm P. Moul & Associates, an independent, financial, and regulatory consulting firm. My educational background, business experience, and qualifications are provided in Appendix A that follows my direct testimony.

Q. What is the purpose of your testimony?

A. My testimony presents evidence, analysis, and a recommendation concerning the appropriate rate of return on common equity that the Public Service Commission of South Carolina ("PSC" or the "Commission") should recognize in the determination of the revenues that Lockhart Power Company ("Lockhart" or the "Company") should realize as a result of this proceeding. My analysis and recommendation is supported by the detailed financial data contained in Exhibit No. PRM-1, which is a multi-page document divided into eleven (11) schedules. Additional evidence, in the form of appendices, follows my direct testimony. The items covered in these appendices provide additional detailed information concerning the explanation and application of the various financial models upon which I rely.

Q. Based upon your analysis, what is your conclusion concerning the appropriate rate of return on common equity for the Company in this case?

A. My conclusion is that the Company should be afforded an opportunity to earn a rate of return on common equity of 12.00%. When applied to the Company's rate base, this rate

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1 of return will compensate investors for the use of their capital.

2 **Q. How have you determined the rate of return on common equity in this case?**

3 A. In arriving at my recommended rate of return on common equity, I employed capital
4 market and financial data relied upon by investors to assess the relative risk, and hence the
5 cost of equity, for an electric utility, such as the Company. In this regard, I relied on four
6 well-recognized measures of the cost of equity: the Discounted Cash Flow ("DCF")
7 model, the Risk Premium analysis, the Capital Asset Pricing Model ("CAPM"), and the
8 Comparable Earnings approach. By considering the results of a variety of approaches, I
9 determined that a reasonable rate of return on common equity is 12.00%. The testimony
10 of Mr. Bryan D. Stone explains the many initiatives that the Company has taken to provide
11 reasonably priced energy to its customers through reinvestment in its business.

12 The rate of return on common equity that I propose is consistent with well-
13 recognized principles for determining a fair rate of return. In this regard, the Commission
14 should consider the principles that I have set forth in Appendix B. The end result of the
15 Commission's rate of return allowance must provide the Company with an opportunity to
16 cover dividend payments, provide a reasonable level of earnings retention, produce an
17 adequate level of internally generated funds to meet capital requirements, and be
18 commensurate with the risk to which the Company's capital is exposed. As I will explain
19 below, the Company has not paid a dividend to its stockholders since 2005, and instead
20 has been reinvesting its earnings into new projects that will hold down the cost of energy
21 that it provides to its customers.

22 **Q. What factors have you considered in determining the cost of equity in this case?**

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1 A. The models that I used to measure the rate of return on common equity for the Company
2 were applied with market and financial data developed from a proxy group of eight
3 companies that own electric utilities. The proxy group consists of publicly-traded
4 companies that are included in The Value Line Investment Survey, whose electric utility
5 subsidiaries operate in the southeastern region of the U.S., and are not currently the target
6 of a merger or acquisition. The companies in the proxy group are identified on page 2 of
7 Schedule 2. I will refer to these companies as the "Electric Group" throughout my
8 testimony.

9 **Q. How have you performed your cost of equity analysis with the market data for the**
10 **Electric Group?**

11 A. I have applied the models/methods for estimating the cost of equity using the average data
12 for the Electric Group. The use of a group average (or portfolio) of utilities will reduce the
13 effect that anomalous results for an individual company may have on the rate of return
14 determination.

15 **Q. Please summarize your cost of equity analysis for the Electric Group.**

16 A. My cost of equity determination was derived from the results of the methods/models
17 identified above. In general, the use of more than one method provides a superior
18 foundation to arrive at the cost of equity. The following tabulation provides a summary of
19 the indicated costs of equity using each of these approaches.

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DCF	10.39%
Risk Premium	11.70%
CAPM	10.47%
Comparable Earnings	15.50%
Average	12.02%
Median	11.09%
Mid-point	12.95%

1 From all these measures, the rate of return on common equity developed from the Electric
2 Group is 12.02%, which is the average of all of these methods. To accommodate the
3 unique risk characteristics of Lockhart, I adjusted the results of the Electric Group. The
4 two adjustments that I propose were intended to recognize the small size of Lockhart as
5 compared to the Electric Group and the lack of debt in the Company's capital structure. I
6 determined that the Company's allowed rate of return on common equity should be set at
7 12.00%.

ELECTRIC UTILITY RISK FACTORS

9 **Q. What background information have you considered in analyzing the Company's rate**
10 **of return on common equity?**

11 A. Lockhart is a very small electric utility. It is a wholly-owned subsidiary of Pacolet
12 Milliken Enterprises, Inc. In the year 2009, the Company had just 6,351 retail customers
13 and had only 41 employees. The Company has realized a net gain of only 41 customers
14 since 2005, which signifies very slow growth for the Company. In 2009, the Company's
15 direct sales (excluding sales for resale) were represented by approximately 44% to

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1 residential, 12% to commercial, and 43% to industrial customers. The percentage of sales
2 to industrial customers has declined significantly since 2005 because of an ongoing
3 decline in textile manufacturing base and the recent recession. While representing 43% of
4 direct electric sales, there are only nine (9) industrial customers. This means that the
5 energy needs of a few customers have a significant impact on the Company's operations.
6 The Company also has one sale for resale customer that represents approximately 56% of
7 total megawatt hour sales. In 2009, the Company generated approximately 18% of its
8 energy from a run-of-the-river hydroelectric facility and other generation resources and
9 purchased 82% of its electric requirements from Duke Energy ("Duke").

10 **Q. Please discuss some of the risk issues for electric utilities.**

11 A. The Energy Policy Act of 2005 brings attention to the emphasis being placed upon the
12 reliability and structure of the electric utility industry. Aside from their traditional
13 responsibility to supply adequate capacity to meet forecast loads amid growing
14 uncertainties due to global warming and conservation, increased competitive risks now
15 exist for electric utilities. Until 2005, 100% of the Company's generation was renewable
16 hydro-electric energy, and as a consequence, the Company did not face any environmental
17 risk directly. However, environmental compliance costs could potentially impact the
18 Company's cost of purchased power. While the cost of purchased power is recovered
19 through a tracking mechanism, higher purchased power costs make the Company's electric
20 rates less competitive. In addition, globalization facing its large industrial customers has a
21 significant impact on the Company's sales to these customers.

22 **Q. Are there other specific risk issues facing the Company?**

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1 A. Yes. Its risk profile is strongly influenced by electricity sold to industrial customers. In
2 the industrial class of customers, the Company's business profile is dominated by textile
3 and textile related industries. Sales to high volume customers are usually thought to be of
4 higher risk than sales to other classes of customers. Success in this segment of the
5 Company's market is subject to (i) the business cycle, (ii) the price of alternative energy
6 sources, and (iii) pressures from alternative providers. In the textile industry, foreign
7 competition has dimmed the outlook for this industry. Moreover, external factors can also
8 influence the Company's sales to these customers which face competitive pressures on
9 their own operations from other facilities outside the Company's service territory. The
10 risk associated with serving industrial customers engaged in the textile and textile related
11 industries can also have a ripple effect on other classes of customers. That is to say, sales
12 to residential and commercial customers can also be impacted by plant closures that may
13 occur.

14 **Q. Please indicate how the Company's risk profile is affected by its construction**
15 **program.**

16 A. Lockhart is faced with the requirement to undertake investment to maintain and upgrade
17 existing facilities in its service territory and to maintain system reliability. Lockhart's
18 capital expenditures are currently expected to total approximately \$40 million over the
19 2011-2020 period, which substantially exceeds its current net utility plant. In order to
20 fund recent substantial capital expenditures, the Company's parent (Pacolet Milliken
21 Enterprises, Inc.) has elected to forego any dividends since the year 2005.

22 **Q. Please summarize your risk assessment of Lockhart?**

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1 A. Lockhart's business risk profile is dominated by:

- 2 • Its very small size.
- 3 • Low growth in its service territory
- 4 • Limited diversity in its service territory
- 5 • A service area whose economy is highly dependent upon the
- 6 textile and textile related industries.
- 7 • Heavy reliance upon purchased power to meet the energy
- 8 requirements of its customers.
- 9 • Its large capital expenditures.

10 Based upon these factors, the Company's business risk is high. To help mitigate these
11 business risk factors, the Company's financial profile consists of 100% equity.

12 FUNDAMENTAL RISK ANALYSIS

13 **Q. Is it necessary to conduct a fundamental risk analysis to provide a framework for a**
14 **determination of a utility's cost of equity?**

15 A. Yes. It is necessary to establish a company's relative risk position within its industry
16 through a fundamental analysis of various quantitative and qualitative factors that bear
17 upon investors' assessment of overall risk. The qualitative factors which bear upon the
18 Company's risk have already been discussed. The quantitative risk analysis follows. The
19 items that influence investors' evaluation of risk and its required returns are described in
20 Appendix C. For this purpose, I have utilized the S&P Public Utilities, an industry-wide
21 proxy consisting of various regulated businesses, and the Electric Group.

22 **Q. What are the components of the S&P public utilities?**

23 A. The S&P Public Utilities is a widely recognized index that is comprised of electric power
24 and natural gas companies. These companies are identified on page 3 of Schedule 3. I
25 have used this group as a broad-based measure of all types of utility companies.

26 **Q. What criteria did you employ to assemble the Electric Group?**

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1 A. The Electric Group that I employed in this case includes eight companies that are engaged
2 in similar business lines, have publicly-traded common stock, are reported in The Value
3 Line Investment Survey, operate within the southeastern region of region of the U.S., and
4 are not currently the target of a merger or acquisition. The Electric Group includes
5 Dominion Resources, Inc., Duke Energy Corp., Entergy Corp., FPL Group (now NextEra
6 Energy), Progress Energy, SCANA Corp., Southern Company, and TECO Energy. The
7 Electric Group members are identified on page 2 of Schedule 2.

8 **Q. Is knowledge of a utility's bond rating an important factor in assessing its risk and**
9 **cost of capital?**

10 A. Yes. Knowledge of a company's credit quality rating is important because the cost of each
11 type of capital is directly related to the associated risk of the firm. So while a company's
12 credit quality risk is shown directly by the credit rating and yield on its bonds, these
13 relative risk assessments also bear upon the cost of equity. This is because a firm's cost of
14 equity is represented by its borrowing cost plus compensation to recognize the higher risk
15 of an equity investment compared to debt.

16 **Q. How do the bond ratings compare for the Electric Group and the S&P Public**
17 **Utilities?**

18 A. Presently, the corporate credit rating ("CCR") for the Electric Group is a BBB+ from
19 Standard and Poor's Corporation ("S&P") and the Long Term ("LT") issuer rating is A3
20 from Moody's Investors Services ("Moody's"). The CCR designation by S&P and LT
21 issuer rating by Moody's focuses upon the credit quality of the issuer of the debt, rather
22 than upon the debt obligation itself. For the S&P Public Utilities, the average composite

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1 rating is BBB+ by S&P and Baa1 by Moody's. Many of the financial indicators that I will
2 subsequently discuss are considered during the rating process.

3 **Q. How do the financial data compare for Lockhart, the Electric Group, and the S&P**
4 **Public Utilities?**

5 A. The broad categories of financial data that I will discuss are shown on Schedules 1, 2 and
6 3. The data cover the five-year period 2005-2009. For the purpose of my analysis, I have
7 analyzed the historical results for Lockhart, the Electric Group, and the S&P Public
8 Utilities. I will highlight the important categories of relative risk as follows:

9 Size. In terms of capitalization, Lockhart is several orders of magnitude smaller
10 than the average size of the Electric Group and the S&P Public Utilities. Indeed the
11 Company's capitalization is about \$27 million as compared to approximately \$24 billion
12 for the Electric Group and approximately \$17 billion for the S&P Public Utilities. All
13 other things being equal, a smaller company is riskier than a larger company because a
14 given change in revenue and expense has a proportionately greater impact on a small firm.
15 As I will demonstrate later, the size of a firm can impact its cost of equity. This is the case
16 for Lockhart. Indeed, the Company is only about one-tenth of one-percent of the average
17 size of the Electric Group. Such small size significantly elevates the Company's risk
18 profile and increases its required return.

19 Market Ratios. Market-based financial ratios provide a partial indication of the
20 investor-required cost of equity. If all other factors are equal, investors will require a
21 higher return on equity for companies that exhibit greater risk, in order to compensate for
22 that risk. That is to say, a firm that investors perceive to have higher risks will experience

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1 a lower price per share in relation to expected earnings.¹

2 There are no market ratios available for Lockhart. The five-year average price-
3 earnings multiple was fairly similar for the Electric Group and the S&P Public Utilities.
4 The five-year average dividend yield was higher for the Electric Group, as compared to
5 the S&P Public Utilities. The five-year average market-to-book ratio was fairly similar for
6 the Electric Group and the S&P Public Utilities.

7 Common Equity Ratio. The level of financial risk is measured by the proportion of
8 long-term debt and other senior capital that is contained in a company's capitalization.
9 Financial risk is also analyzed by comparing common equity ratios (the complement of the
10 ratio of debt and other senior capital). That is to say, a firm with a high common equity
11 ratio has lower financial risk, while a firm with a low common equity ratio has higher
12 financial risk. Lockhart employs no borrowed capital in its capitalization, and hence has
13 no financial risk. The five-year average common equity ratios, based on permanent
14 capital, were 44.3% for the Electric Group and 45.8% for the S&P Public Utilities.

15 Return on Book Equity. Greater variability (i.e., uncertainty) of a firm's earned
16 returns signifies relative levels of risk, as shown by the coefficient of variation (standard
17 deviation ÷ mean) of the rate of return on book common equity. The higher the
18 coefficients of variation, the greater degree of variability. For the five-year period, the
19 coefficients of variation were 0.057 (0.6% ÷ 10.5%) for Lockhart, 0.098 (1.2% ÷ 12.2%)
20 for the Electric Group, and 0.103 (1.2% ÷ 11.7%) for the S&P Public Utilities. The

¹ For example, two otherwise similarly situated firms each reporting \$1.00 in earnings per share would have different market prices at varying levels of risk (i.e., the firm with a higher level of risk will have a lower share value, while the firm with a lower risk profile will have a higher share value).

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1 earnings variability for Lockhart must be viewed in the context of its capital structure that
2 contains no borrowed funds. The lack of borrowed funds by Lockhart mandates lower
3 earnings variability as compared to other companies that use debt in their capital structure.
4 It should be emphasized that Lockhart's average achieved return of 10.5% is both well
5 below its authorized return of 12.0%, and is well below the average achieved return of
6 12.2% for the Electric Group. The Company's earned return deficiency heightens its risk.

7 Operating Ratios. I have also compared operating ratios (the percentage of
8 revenues consumed by operating expense, depreciation, and taxes other than income).²
9 The five-year average operating ratios were 85.8% for Lockhart, 83.1% for the Electric
10 Group, and 84.4% for the S&P Public Utilities. These comparisons show higher operating
11 risk for Lockhart as compared to the Electric Group and the S&P Public Utilities.
12 Lockhart's higher operating ratio can be traced to the significant role that purchased power
13 has on its operations. With a majority of its energy requirements provided by another
14 utility, the Company must rely upon Duke to provide much of the energy needs for its
15 customers. In the hierarchy of claims on the Company's revenues, Duke (i.e., the
16 wholesaler) obtains recovery of its fixed costs prior to the realization of a return for
17 Lockhart (i.e., the retailer). The Company does have the ability to recover its purchased
18 power costs through the PPA Clause. Hence, the investor in the retail business is
19 subordinate to the contractual payments to the wholesaler. That is to say, the fixed costs
20 of the wholesaler become operating costs of the retailer.

² The complement of the operating ratio is the operating margin which provides a measure of profitability. The higher the operating ratio, the lower the operating margin.

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1 Coverage. The level of fixed charge coverage (i.e., the multiple by which available
2 earnings cover fixed charges, such as interest expense) provides an indication of the
3 earnings protection for creditors. Higher levels of coverage, and hence earnings protection
4 for fixed charges, are usually associated with superior grades of creditworthiness. The
5 five-year average interest coverage (excluding AFUDC) was 3.16 for the Electric Group
6 and 3.42 times for the S&P Public Utilities. Coverage calculations are not meaningful for
7 Lockhart because interest on customer deposits represents its only interest expense.

8 Quality of Earnings. Measures of earnings quality usually are revealed by the
9 percentage of Allowance for Funds Used During Construction ("AFUDC") related to
10 income available for common equity, the effective income tax rate, and other cost
11 deferrals. These measures of earnings quality usually influence a firm's internally
12 generated funds because poor quality of earnings would not generate high levels of cash
13 flow. Quality of earnings has not been a significant concern for Lockhart, which does not
14 record AFUDC, the Electric Group, and the S&P Public Utilities.

15 Internally Generated Funds. Internally generated funds ("IGF") provide an
16 important source of new investment capital for a utility and represent a key measure of
17 credit strength. Historically, the five-year average percentage of IGF to capital
18 expenditures was 153.8% for Lockhart, 88.0% for the Electric Group, and 88.4% for the
19 S&P Public Utilities. As a small privately held company, the Company has demonstrated
20 the ability and willingness to manage its dividend payments so its IGF covers its
21 construction requirements. Indeed, Lockhart has not paid a common dividend since 2005,
22 thereby enhancing its IGF. Hence, during periods of high capital requirements, the

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1 Company may pay little or no dividends. The ability to manage dividend payments in
2 response to capital expenditures is a situation not common for larger electric utilities with
3 publicly-traded stock.

4 Betas. The financial data that I have been discussing relate primarily to company-
5 specific risks. Market risk for firms with publicly-traded stock is measured by beta
6 coefficients. Beta coefficients attempt to identify systematic risk, i.e., the risk associated
7 with changes in the overall market for common equities.³ Value Line publishes such a
8 statistical measure of a stock's relative historical volatility to the rest of the market. A
9 comparison of market risk is shown by the Value Line beta of .69 as the average for the
10 Electric Group (see page 2 of Schedule 2), and .77 as the average for the S&P Public
11 Utilities (see page 3 of Schedule 4).

12 **Q. Please summarize your risk evaluation of Lockhart and the Electric Group.**

13 A. Lockhart is several orders of magnitude smaller than the average size of the Electric
14 Group. The Company also possesses higher operating risk than the Electric Group. As a
15 mitigating risk factor, Lockhart lacks any financial risk because its common equity ratio is
16 100%. The Company's retail customer base is dominated by a large proportion of sales to
17 few industrial customers, many of which are engaged in textile manufacturing and related
18 industries. The Company's capital expenditures are also expected to be relatively large in
19 the future. Overall, the fundamental risk factors indicate that the Electric Group is useful
20 in measuring the Company's cost of equity, when Lockhart's unique risk traits are taken

³ The procedure used to calculate the beta coefficient published by Value Line is described in Appendix I. A common stock that has a beta less than 1.0 is considered to have less systematic risk than the market as a whole and would be expected to rise and fall more slowly than the rest of the market. A stock with a beta above 1.0 would have more systematic risk.

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1 into account.

COST OF EQUITY – GENERAL APPROACH

3 **Q. Please describe the process you employed to determine the cost of equity for the**
4 **Company.**

5 **A.** Although my fundamental financial analysis provides the required framework to establish
6 the risk relationships between Lockhart, the Electric Group, and the S&P Public Utilities,
7 the cost of equity must be measured by standard financial models that I describe in
8 Appendix D. Differences in risk traits, such as size, business diversification, geographical
9 diversity, regulatory policy, financial leverage, and bond ratings must be considered when
10 analyzing the cost of equity.

11 It is also important to reiterate that no one method or model of the cost of equity
12 can be applied in an isolated manner. Rather, informed judgment must be used to take into
13 consideration the relative risk traits of the firm. It is for this reason that I have used more
14 than one method to measure the Company's cost of equity. As noted in Appendix D, and
15 elsewhere in my direct testimony, each of the methods used to measure the cost of equity
16 contains certain incomplete and/or overly restrictive assumptions and constraints that are
17 not optimal. Therefore, I favor considering the results from a variety of methods. In this
18 regard, I applied each of the methods with data taken from the Electric Group and have
19 arrived at a cost of equity of 12.02%. With this cost of equity as a foundation, I
20 determined that a 12.00% rate of return on common equity is appropriate for Lockhart,
21 after recognizing the Company's 100% common equity ratio and its very small size.

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DISCOUNTED CASH FLOW ANALYSIS

Q. Please describe your use of the Discounted Cash Flow approach to determine the cost of equity.

A. The details of my use of the DCF approach and the calculations and evidence in support of my conclusions are set forth in Appendix E. I will summarize them here. The Discounted Cash Flow ("DCF") model seeks to explain the value of an asset as the present value of future expected cash flows discounted at the appropriate risk-adjusted rate of return. In its simplest form, the DCF return on common stocks consists of a current cash (dividend) yield and future price appreciation (growth) of the investment.

Among other limitations of the model, there is a certain element of circularity in the DCF method when applied in rate cases. This is because investors' expectations for the future depend upon regulatory decisions. In turn, when regulators depend upon the DCF model to set the cost of equity, they rely upon investor expectations that include an assessment of how regulators will decide rate cases. Due to this circularity, the DCF model may not fully reflect the true risk of a regulated utility.

As I describe in Appendix E, the DCF approach has other limitations that diminish its usefulness in the ratesetting process when the market capitalization of utilities with traded stock diverges significantly from the book value capitalization. When this situation exists, the DCF method will lead to a misspecified cost of equity when it is applied to a book value capital structure.

Q. Please explain the dividend yield component of a DCF analysis.

A. The DCF methodology requires the use of an expected dividend yield to establish the

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1 investor-required cost of equity. For the twelve months ended August 2010, the monthly
2 dividend yields of the Electric Group are shown graphically on Schedule 4. The monthly
3 dividend yields shown on Schedule 4 reflect an adjustment to the month-end prices to
4 reflect the build up of the dividend in the price that has occurred since the last ex-dividend
5 date (i.e., the date by which a shareholder must own the shares to be entitled to the
6 dividend payment – usually about two to three weeks prior to the actual payment). An
7 explanation of this adjustment is provided in Appendix E.

8 For the twelve months ending August 2010, the average dividend yield was 5.09%
9 for the Electric Group based upon a calculation using annualized dividend payments and
10 adjusted month-end stock prices. The dividend yields for the more recent six- and three-
11 month periods were 5.04% and 5.02%, respectively. I have used, for the purpose of my
12 direct testimony, a dividend yield of 5.04% for the Electric Group, which represents the
13 six-month average yield. The use of this dividend yield will reflect current capital costs
14 while avoiding spot yields.

15 For the purpose of a DCF calculation, the average dividend yields must be adjusted
16 to reflect the prospective nature of the dividend payments i.e., the higher expected
17 dividends for the future. Recall that the DCF is an expectational model that must reflect
18 investor anticipated cash flows for the Electric Group. I have adjusted the six-month
19 average dividend yield in three different but generally accepted manners, and used the
20 average of the three adjusted values as calculated in Appendix E. That adjusted dividend
21 yield is 5.19% for the Electric Group.

22 **Q. Please explain the underlying factors that influence investor's growth expectations.**

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1 A. As noted previously, investors are interested principally in the future growth of its
2 investment (i.e., the price per share of the stock). As I explain in Appendix E, future
3 earnings per share growth represents its primary focus because under the constant price-
4 earnings multiple assumption of the DCF model, the price per share of stock will grow at
5 the same rate as earnings per share. In conducting a growth rate analysis, a wide variety of
6 variables can be considered when reaching a consensus of prospective growth. The
7 variables that can be considered include: earnings, dividends, book value, and cash flow
8 stated on a per share basis. Historical values for these variables can be considered, as well
9 as analysts' forecasts that are widely available to investors. A fundamental growth rate
10 analysis can also be formulated, which consists of internal growth (" $b \times r$ "), where " r "
11 represents the expected rate of return on common equity and " b " is the retention rate that
12 consists of the fraction of earnings that are not paid out as dividends. The internal growth
13 rate can be modified to account for sales of new common stock -- this is called external
14 growth (" $s \times v$ "), where " s " represents the new common shares expected to be issued by a
15 firm and " v " represents the value that accrues to existing shareholders from selling stock at
16 a price different from book value. Fundamental growth, which combines internal and
17 external growth, provides an explanation of the factors that cause book value per share to
18 grow over time. Hence, a fundamental growth rate analysis is duplicative of expected
19 book value per share growth.

20 Growth can also be expressed in multiple stages. This expression of growth
21 consists of an initial "growth" stage where a firm enjoys rapidly expanding markets, high
22 profit margins, and abnormally high growth in earnings per share. Thereafter, a firm

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1 enters a "transition" stage where fewer technological advances and increased product
2 saturation begins to reduce the growth rate and profit margins come under pressure.
3 During the "transition" phase, investment opportunities begin to mature, capital
4 requirements decline, and a firm begins to pay out a larger percentage of earnings to
5 shareholders. Finally, the mature or "steady-state" stage is reached when a firm's earnings
6 growth, payout ratio, and return on equity stabilizes at levels where they remain for the life
7 of a firm. The three stages of growth assume a step-down of high initial growth to lower
8 sustainable growth. Even if these three stages of growth can be envisioned for a firm, the
9 third "steady-state" growth stage, which is assumed to remain fixed in perpetuity,
10 represents an unrealistic expectation because the three stages of growth can be repeated.
11 That is to say, the stages can be repeated where growth for a firm ramps-up and ramps-
12 down in cycles over time.

13 **Q. What investor-expected growth rate is appropriate in a DCF calculation?**

14 A. Investors consider both company-specific variables and overall market sentiment (i.e.,
15 level of inflation rates, interest rates, economic conditions, etc.) when balancing its capital
16 gains expectations with its dividend yield requirements. I follow an approach that is not
17 rigidly formatted because investors are not influenced by a single set of company-specific
18 variables weighted in a formulaic manner. Therefore, in my opinion, all relevant growth
19 rate indicators using a variety of techniques must be evaluated when formulating a
20 judgment of investor expected growth.

21 **Q. What company-specific data have you considered in your growth rate analysis?**

22 A. I have considered the growth in the financial variables shown on Schedules 5 and 6. The

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1 bar graph provided on Schedule 5 shows the historical growth rates in earnings per share,
2 dividends per share, book value per share, and cash flow per share for the Electric Group.
3 The historical growth rates were taken from the Value Line publication that provides these
4 data. As shown on Schedule 5, historical growth has been low for many of these variables
5 for the Electric Group. This is because the historical growth rates contain instances of
6 negative values for individual companies within the Electric Group. Negative growth
7 rates provide no reliable guide to gauge investor expected growth for the future. Investor
8 expectations encompass long-term positive growth rates and, as such, could not be
9 represented by sustainable negative rates of change. Therefore, statistics that include
10 negative growth rates should not be given any weight when formulating a composite
11 growth rate expectation. The prospect of rate increases granted by regulators, the
12 continued obligation to provide service as required by customers and the ongoing growth
13 of customers mandate investor expectations of positive future growth rates. Stated simply,
14 there is no reason for investors to expect that a utility will wind up its business and
15 distribute its common equity capital to shareholders, which would be symptomatic of a
16 long-term permanent earnings decline. Although investors have knowledge that negative
17 growth and losses can occur, their expectations include positive growth. Negative historic
18 values will not provide a reasonable representation of future growth expectations because,
19 in the long run, investors will always expect positive growth. Indeed, rational investors
20 expect positive returns otherwise they will hold cash rather than invest with the
21 expectation of a loss.

22 Schedule 6 provides projected earnings per share growth rates taken from analysts'

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1 forecasts compiled by IBES/First Call, Zacks, and Morningstar and from the Value Line
2 publication. IBES/First Call, Zacks, and Morningstar represent reliable authorities of
3 projected growth upon which investors rely. The IBES/First Call, Zacks, and Morningstar
4 forecasts are limited to earnings per share growth, while Value Line makes projections of
5 other financial variables. The Value Line forecasts of dividends per share, book value per
6 share, and cash flow per share have also been included on Schedule 6 for the Electric
7 Group.

8 Although five-year forecasts usually receive the most attention in the growth
9 analysis for DCF purposes, present market performance has been strongly influenced by
10 short-term earnings forecasts. Each of the major publications provides earnings forecasts
11 for the current and subsequent year. These short-term earnings forecasts receive
12 prominent coverage, and indeed they dominate these publications. While the DCF model
13 typically focuses upon long-run estimates of earnings, stock prices are clearly influenced
14 by current and near-term earnings forecasts.

15 **Q. Is a five-year investment horizon associated with the analysts' forecasts consistent**
16 **with the DCF model?**

17 A. Yes. In fact, it illustrates that the infinite form of the model contains an unrealistic
18 assumption. Rather than viewing the DCF in the context of an endless stream of growing
19 dividends (e.g., a century of cash flows), the growth in the share value (i.e., capital
20 appreciation, or capital gains yield) is most relevant to investors' total return expectations.
21 Hence, the sale price of a stock can be viewed as a liquidating dividend that can be
22 discounted along with the annual dividend receipts during the investment-holding period

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1 to arrive at the investor expected return. The growth in the price per share will equal the
2 growth in earnings per share absent any change in price-earnings (P-E) multiple -- a
3 necessary assumption of the DCF. As such, my company-specific growth analysis, which
4 focuses principally upon five-year forecasts of earnings per share growth, conforms with
5 the type of analysis that influences the total return expectation of investors. Moreover,
6 academic research focuses on five-year growth rates as they influence stock prices.
7 Indeed, if investors really required forecasts which extended beyond five years in order to
8 properly value common stocks, then I am sure that some investment advisory service
9 would begin publishing that information for individual stocks in order to meet the
10 demands of investors. The absence of such a publication signals that investors do not
11 require infinite forecasts in order to purchase and sell stocks in the marketplace.

12 **Q. What specific evidence have you considered in the DCF growth analysis?**

13 A. As to the five-year forecast growth rates, Schedule 6 indicates that the projected earnings
14 per share growth rates for the Electric Group are 4.72% by IBES/First Call, 4.13% by
15 Zacks, 4.70% by Morningstar, and 5.19% by Value Line. The Value Line projections
16 indicate that earnings per share for the Electric Group will grow prospectively at a more
17 rapid rate (i.e., 5.19%) than the dividends per share (i.e., 3.81%), which indicates a
18 declining dividend payout ratio for the future. As indicated earlier, and in Appendix E,
19 with the constant price-earnings multiple assumption of the DCF model, growth for these
20 companies will occur at the higher earnings per share growth rate, thus producing the
21 capital gains yield expected by investors.

22 **Q. What conclusion have you drawn from these data?**

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1 A. Although ideally historical and projected earnings per share and dividends per share
2 growth indicators would be used to provide an assessment of investor growth expectations
3 for a firm, the circumstances of the Electric Group mandate that the greater emphasis be
4 placed upon projected earnings per share growth. The massive restructuring of the utility
5 industry suggests that historical evidence alone does not represent a complete measure of
6 growth for these companies. Rather, projections of future earnings growth provide the
7 principal focus of investor expectations. In this regard, it is worthwhile to note that
8 Professor Myron Gordon, the foremost proponent of the DCF model in rate cases,
9 concluded that the best measure of growth in the DCF model is forecasts of earnings per
10 share growth.⁴ Hence, to follow Professor Gordon's findings, projections of earnings per
11 share growth, such as those published by IBES/First Call, Zacks, Reuters/Market Guide,
12 and Value Line, represents a reasonable assessment of investor expectations.

13 It is appropriate to consider all forecasts of earnings growth rates that are
14 available to investors. In this regard, I have considered the forecasts from IBES/First Call,
15 Zacks, Morningstar, and Value Line. The IBES/First Call and Zacks growth rates are
16 consensus forecasts taken from a survey of analysts that make projections of growth for
17 these companies. The IBES/First Call, Zacks, and Morningstar estimates are obtained
18 from the Internet and are widely available to investors free-of-charge. First Call probably
19 is quoted most frequently in the financial press when reporting on earnings forecasts. The
20 Value Line forecasts also are widely available to investors and can be obtained by
21 subscription or free-of-charge at most public and collegiate libraries.

⁴ "Choice Among Methods of Estimating Share Yield," The Journal of Portfolio Management, spring 1989 by Gordon, Gordon & Gould.

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1 The forecasts of earnings per share growth for the Electric Group as shown on
2 Schedule 6 provide a range of growth rates of 4.13% to 5.19%. To the growth rates for the
3 Electric Group, consideration must be given to long-term growth in corporate profits.
4 While the DCF growth rates cannot be established solely with a mathematical formulation,
5 it is my opinion that an investor-expected growth rate of 5.00% is within the array of
6 earnings per share growth rates shown by the analysts' forecasts. The Value Line forecast
7 of dividend per share growth is inadequate in this regard due to the forecast decline in the
8 dividend payout that I previously described. As such, a 5.00% growth rate will
9 accommodate all these factors.

10 **Q. Please provide the DCF return based upon your preceding discussion of dividend**
11 **yield and growth.**

12 A. As explained previously, I have utilized a six-month average dividend yield (" D_1 / P_0 ")
13 adjusted in a forward-looking manner for my DCF calculation. This dividend yield is used
14 in conjunction with the growth rate (" g ") previously developed. The cost of equity must
15 also include an adjustment to cover flotation costs ("flot."). The factor used to develop the
16 modification that would account for the flotation costs adjustment is provided in Schedule
17 7 and Appendix F. Therefore, a flotation costs adjustment must be applied to the DCF
18 result (i.e., " k ") that provides an additional increment to the rate of return on equity (i.e.,
19 " K ").

20 **Q. What DCF cost rate have you calculated?**

21 A. The resulting DCF cost rate is:

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$$D_1/P_0 + g = k \times \text{flot.} = K$$

$$\text{Electric Group} \quad 5.19\% + 5.00\% = 10.19\% \times 1.02 = 10.39\%$$

1 As indicated by the DCF result shown above, the flotation cost adjustment adds 0.20%
2 (10.39% - 10.19%) to the rate of return on common equity for the Electric Group. In my
3 opinion, this adjustment is reasonable for reasons explained in Appendix F. The DCF
4 result shown above represents the simplified (i.e., Gordon) form of the model that contains
5 a constant growth assumption. I should reiterate, however, that the DCF indicated cost
6 rate provides an explanation of the rate of return on common stock market prices without
7 regard to the prospect of a change in the price-earnings multiple. An assumption that there
8 will be no change in the price-earnings multiple is not supported by the realities of the
9 equity market because price-earnings multiples do not remain constant.

RISK PREMIUM ANALYSIS

11 **Q. Please describe your use of the Risk Premium approach to determine the cost of**
12 **equity.**

13 A. The details of my use of the Risk Premium approach and the evidence in support of my
14 conclusions are set forth in Appendix H. I will summarize them here. With this method,
15 the cost of equity capital is determined by corporate bond yields plus a premium to
16 account for the fact that common equity is exposed to greater investment risk than debt
17 capital.

18 **Q. What long-term public utility debt cost rate did you use in your risk premium**
19 **analysis?**

20 A. In my opinion, a 6.00% yield represents a reasonable estimate of the prospective yield on

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1 long-term A-rated public utility bonds. As I will subsequently show, the Moody's index
2 and the Blue Chip forecasts support this figure. The historical yields for long-term public
3 utility debt are shown graphically on page 1 of Schedule 8. For the twelve months ended
4 August 2010, the average monthly yield on Moody's A-rated index of public utility bonds
5 was 5.59%. For the six and three-month periods ended August 2010, the yields were
6 5.48% and 5.24%, respectively. During the twelve-months ended August 2010, the range
7 of the yields on A-rated public utility bonds was 5.01% to 5.87%.

8 **Q. What forecasts of interest rates have you considered in your analysis?**

9 A. I have determined the prospective yield on A-rated public utility debt by using the Blue
10 Chip Financial Forecasts ("Blue Chip") along with the spread in the yields that I describe
11 above and in Appendix G. The Blue Chip is a reliable authority and contains consensus
12 forecasts of a variety of interest rates compiled from a panel of banking, brokerage, and
13 investment advisory services. In early 1999, Blue Chip stopped publishing forecasts of
14 yields on A-rated public utility bonds because the Federal Reserve deleted these yields
15 from its Statistical Release H.15. To independently project a forecast of the yields on A-
16 rated public utility bonds, I have combined the forecast yields on long-term Treasury
17 bonds published on September 1 2010, and a yield spread of 1.50%. As shown on page 5
18 of Schedule 8, the yields on A-rated public utility bonds have exceeded those on Treasury
19 bonds by 1.39% on a twelve-month average basis, 1.41% on a six-month average basis,
20 and 1.49% on a the three-month average basis. From these averages, 1.50% represents a
21 reasonable spread for the yield on A-rated public utility bonds over Treasury bonds. For

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1 comparative purposes, I also have shown the Blue Chip forecasts of Aaa-rated and Baa-
 2 rated corporate bonds. These forecasts are:

Blue Chip Financial Forecasts						
Year	Quarter	Corporate		30-Year	A-rated Public Utility	
		Aaa-rated	Baa-rated	Treasury	Spread	Yield
2010	Third	4.5%	5.7%	3.8%	1.50%	5.30%
2010	Fourth	4.6%	5.7%	3.9%	1.50%	5.40%
2011	First	4.7%	5.8%	4.1%	1.50%	5.60%
2011	Second	4.9%	6.0%	4.3%	1.50%	5.80%
2011	Third	5.1%	6.1%	4.5%	1.50%	6.00%
2011	Fourth	5.3%	6.4%	4.7%	1.50%	6.20%

3 **Q. Are there additional forecasts of interest rates that extend beyond those shown**
 4 **above?**

5 A. Yes. Twice yearly, Blue Chip provides long-term forecasts of interest rates. In its June 1,
 6 2010 publication, the Blue Chip published longer-term forecasts of interest rates, which
 7 were reported to be:

Blue Chip Financial Forecasts			
Averages	Corporate		30-Year
	Aaa-rated	Baa-rated	Treasury
2012-16	6.5%	7.6%	5.8%
2017-21	6.6%	7.6%	5.8%

8 Given these forecasted interest rates, a 6.00% yield on A-rated public utility bonds
 9 represents a reasonable expectation.

10 **Q. What equity risk premium have you determined for public utilities?**

11 A. Appendix H provides a discussion of the financial returns that I relied upon to develop the
 12 appropriate equity risk premium for the S&P Public Utilities. I have calculated the equity
 13 risk premium by comparing the market returns on utility stocks and the market returns on

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1 utility bonds. I chose the S&P Public Utility index for the purpose of measuring the
2 market returns for utility stocks because it is intended to represent firms engaged in
3 regulated activities and today is comprised of electric companies and gas companies. The
4 S&P Public Utility index is more closely aligned with these groups than some broader
5 market indexes, such as the S&P 500 Composite index. The S&P Public Utility index is a
6 subset of the overall S&P 500 Composite index. Use of the S&P Public Utility index
7 reduces the role of judgment in establishing the risk premium for public utilities. With the
8 equity risk premiums developed for the S&P Public Utilities as a base, I derived the equity
9 risk premium for the Electric Group.

10 **Q. What equity risk premium for the S&P Public Utilities have you determined for this**
11 **case?**

12 A. To develop an appropriate risk premium, I analyzed the results for the S&P Public Utilities
13 by averaging (i) the midpoint of the range shown by the geometric mean and median and
14 (ii) the arithmetic mean. This procedure has been employed to provide a comprehensive
15 way of measuring the central tendency of the historical returns. As shown by the values
16 set forth on page 2 of Schedule 9, the indicated risk premiums for the various time periods
17 analyzed are 5.51% (1928-2007), 6.58% (1952-2007), 6.08% (1974-2007), and 6.37%
18 (1979-2007). The selection of the shorter periods taken from the entire historical series is
19 designed to provide a risk premium that conforms more nearly to present investment
20 fundamentals and removes some of the more distant data from the analysis.

21 **Q. Do you have further support for the selection of the time periods used in your equity**
22 **risk premium determination?**

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1 A. Yes. First, the terminal year of my analysis presented in Schedule 9 represents the returns
2 realized through 2007. An update to 2008 and 2009 has not been prepared because of the
3 difficulty in obtaining the return on public utility bonds from Lehman Brothers, which is
4 in bankruptcy. Second, the selection of the initial year of each period was based upon the
5 financial market defining events that I note here and describe in Appendix H. These
6 events were fixed in history and cannot be manipulated as later financial data becomes
7 available. That is to say, using the Treasury-Federal Reserve Accord as a defining event,
8 the year 1952 is fixed as the beginning point for the measurement period regardless of the
9 financial results that subsequently occurred. Likewise, 1974 represented a benchmark
10 year because it followed the 1973 Arab Oil embargo. Also, the year 1979 was chosen
11 because it began the deregulation of the financial markets. I consistently use these periods
12 in my work, and additional data are merely added to the earlier results when they become
13 available. The periods chosen are, therefore, not driven by the desired results of the study.

14 **Q. What conclusions have you drawn from these data?**

15 A. Using the summary values provided on page 2 of Schedule 9, the 1928-2007 period
16 provides the lowest indicated risk premium, while the 1952-2007 period provides the
17 highest risk premium for the S&P Public Utilities. Within these bounds, a common equity
18 risk premium of 6.23% ($6.08\% + 6.37\% = 12.45\% \div 2$) is derived by averaging data
19 covering the periods 1974-2007 and 1979-2007. Therefore, 6.23% represents a reasonable
20 risk premium for the S&P Public Utilities in this case.

21 As noted earlier in my fundamental risk analysis, differences in risk characteristics
22 must be taken into account when applying the results for the S&P Public Utilities to the

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1 Electric Group. I recognized these differences in the development of the equity risk
2 premium in this case. I previously enumerated various differences in fundamentals
3 between the Electric Group and the S&P Public Utilities, including size, market ratios,
4 common equity ratio, return on book equity, operating ratios, coverage, quality of
5 earnings, internally generated funds, and betas. In my opinion, these differences indicate
6 that 5.50% represents a reasonable common equity risk premium in this case. This
7 represents approximately 88% ($5.50\% \div 6.23\% = 0.88$) of the risk premium of the S&P
8 Public Utilities, and is reflective of the risk of the Electric Group compared to the S&P
9 Public Utilities.

10 **Q. What common equity cost rate would be appropriate using this equity risk premium**
11 **and the yield on long-term public utility debt?**

12 A. The cost of equity (i.e., "k") is represented by the sum of the prospective yield for long-
13 term public utility debt (i.e., "i") and the equity risk premium (i.e., "RP"). To that cost
14 must be added an adjustment for common stock financing costs ("flot."). The Risk
15 Premium approach provides a cost of equity of:

$$i + RP = k + flot. = K$$

$$\text{Electric Group } 6.00\% + 5.50\% = 11.50\% + 0.20\% = 11.70\%$$

CAPITAL ASSET PRICING MODEL

16
17 **Q. How have you used the Capital Asset Pricing Model to measure the cost of equity in**
18 **this case?**

19 A. I have used the Capital Asset Pricing Model ("CAPM") in addition to my other methods.
20 As with other models of the cost of equity, the CAPM contains a variety of assumptions

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1 that I discuss in Appendix I. Therefore, this method should be used with other methods to
2 measure the cost of equity, as each will complement the other and will provide a result that
3 will alleviate the unavoidable shortcomings found in each method.

4 **Q. What are the features of the CAPM as you have used it?**

5 A. The CAPM uses the yield on a risk-free interest bearing obligation plus a rate of return
6 premium that is proportional to the systematic risk of an investment. The details of my
7 use of the CAPM and evidence in support of my conclusions are set forth in Appendix I.
8 To compute the cost of equity with the CAPM, three components are necessary: a risk-
9 free rate of return ("Rf"), the beta measure of systematic risk (" β "), and the market risk
10 premium ("Rm-Rf") derived from the total return on the market of equities reduced by the
11 risk-free rate of return. The CAPM specifically accounts for differences in systematic risk
12 (i.e., market risk as measured by the beta) between an individual firm or group of firms
13 and the entire market of equities. As such, to calculate the CAPM it is necessary to
14 employ firms with traded stocks. In this regard, I performed a CAPM calculation for the
15 Electric Group. In contrast, my Risk Premium approach also considers industry- and
16 company-specific factors because it is not limited to measuring just systematic risk. As a
17 consequence, the Risk Premium approach is more comprehensive than the CAPM. In
18 addition, the Risk Premium approach provides a better measure of the cost of equity
19 because it is founded upon the yields on corporate bonds rather than Treasury bonds.

20 **Q. What betas have you considered in the CAPM?**

21 A. For my CAPM analysis, I considered the Value Line betas. As shown on page 1 of
22 Schedule 10, the average beta is .69 for the Electric Group.

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1 **Q. What risk-free rate have you used in the CAPM?**

2 A. For the reasons explained in Appendix G, I have employed the yields on 20-year Treasury
3 bonds using historical data. For forecasts, I have used the yields on 30-year Treasury
4 bonds that are published by Blue Chip. The reason that I used the 20-year Treasury yield
5 in my historical analysis relates to the interruption in the 30-year series, which had no data
6 reported for the months of March 2002 to January 2006. That is to say, 48-months of data
7 were missing from the 60-months that I used for my five-year historical analysis shown on
8 page 2 of Schedule 10. As shown on pages 2 and 3 of Schedule 10, I provided the
9 historical yields on Treasury notes and bonds. For the twelve months ended August 2010,
10 the average yield was 4.19%, as shown on page 3 of that schedule. For the six- and three-
11 months ended August 2010, the yields on 20-year Treasury bonds averaged 4.07% and
12 3.76%, respectively. During the twelve-months ended August 2010, the range of the
13 yields on 20-year Treasury bonds was 3.52% to 4.53%. In recent months, there has been a
14 significant decline in the yields on Treasury obligations, which can be traced to a number
15 of factors, including: a purported bubble that may be developing in the market for
16 Treasury obligations, the sovereign debt crisis, concern over a possible double dip
17 recession, the possibility of potential deflation, and maintenance by the Fed of its large
18 balance sheet through the reinvestment of the proceeds from maturing mortgage-backed
19 securities with the purchase of Treasury obligations. The purchase by the Fed of Treasury
20 obligations, also known as quantitative easing, is designed to provide monetary stimulus to
21 invigorate the economy. While Treasury yields have declined for a variety of reasons, the
22 decline in corporate (i.e., public utility) bond yields has not been so pronounced or

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1 revealed by the increased spreads, that I discussed previously. As shown on page 4 of
2 Schedule 10, forecasts published by Blue Chip on September 1, 2010 indicate that the
3 yields on long-term Treasury bonds are expected to be in the range of 3.8% to 4.7% during
4 the next six quarters. The longer term forecasts described previously (see Blue Chip
5 Financial Forecast presented earlier) show that the yields on 30-year Treasury bonds will
6 average 5.8% from 2012 through 2016 and from 2017 to 2021. For the reasons explained
7 previously, forecasts of interest rates should be emphasized at this time in selecting the
8 risk-free rate of return in CAPM. Hence, I have used a 4.50% risk-free rate of return for
9 CAPM purposes, which considers not only the Blue Chip forecasts, but also the recent
10 trend in the yields on long-term Treasury bonds.

11 **Q. What market premium have you used in the CAPM?**

12 A. As shown in Appendix I, the market premium is derived from the SBBI Classic Yearbook
13 (i.e., 6.05%) and the Value Line and S&P 500 returns (i.e., 10.66%). For the historically
14 based market premium, I have used the arithmetic mean. The market premium as
15 averaged from these sources equals 8.36% ($6.05\% + 10.66\% = 16.71\% \div 2$).

16 **Q. What CAPM result have you determined using the CAPM?**

17 A. Using the 4.50% risk-free rate of return, the beta of .69 for the Electric Group, the 8.36%
18 market premium, and the flotation cost adjustment developed previously, the following
19 result is indicated.

$$R_f + \beta \times (R_m - R_f) = k + \text{flot.} = K$$

$$\text{Electric Group } 4.50\% + 0.69 \times (8.36\%) = 10.27\% + 0.20\% = 10.47\%$$

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COMPARABLE EARNINGS APPROACH

Q. How have you applied the Comparable Earnings approach in this case?

A. The technical aspects of my Comparable Earnings approach are set forth in Appendix J. In order to identify the appropriate return on equity for a public utility, it is necessary to analyze returns experienced by other firms within the context of the Comparable Earnings standard. The firms selected for the Comparable Earnings approach should be companies whose prices are not subject to cost-based price ceilings (i.e., non-regulated firms) so that circularity is avoided. To avoid circularity, it is essential that returns achieved under regulation not provide the basis for a regulated return. Because regulated firms must compete with non-regulated firms in the capital markets, it is appropriate to view the returns experienced by firms which operate in competitive markets. One must keep in mind that the rates of return for non-regulated firms represent results on book value actually achieved, or expected to be achieved, because the starting point of the calculation is the actual experience of companies that are not subject to rate regulation. The United States Supreme Court has held that:

A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties.... The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties. Bluefield Water Works vs. Public Service Commission, 262 U.S. 668 (1923).

Therefore, it is important to identify the returns earned by firms that compete for

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1 capital with a public utility. This can be accomplished by analyzing the returns of non-
2 regulated firms that are subject to the competitive forces of the marketplace.

3 There are two avenues available to implement the Comparable Earnings approach.
4 One method would involve the selection of another industry (or industries) with
5 comparable risks to the public utility in question, and the results for all companies within
6 that industry would serve as a benchmark. The second approach requires the selection of
7 parameters that represent similar risk traits for the public utility and the comparable risk
8 companies. Using this approach, the business lines of the comparable companies become
9 unimportant. The latter approach is preferable with the further qualification that the
10 comparable risk companies exclude regulated firms. As such, this approach to
11 Comparable Earnings avoids the circular reasoning implicit in the use of the achieved
12 earnings/book ratios of other regulated firms. Rather, it provides an indication of an
13 earnings rate derived from non-regulated companies that are subject to competition in the
14 marketplace and not rate regulation. Since regulation is a substitute for competitively-
15 determined prices, the returns realized by non-regulated firms with comparable risks to a
16 public utility provide useful insight into a fair rate of return. This is because returns
17 realized by non-regulated firms have become increasingly relevant in the context of a
18 market that provides more investment alternatives. Moreover, the rate of return for a
19 regulated public utility must be competitive with returns available on investments in other
20 enterprises having corresponding risks, especially in a more global economy.

21 To identify the comparable risk companies, the Value Line Investment Survey for
22 Windows was used to screen for firms of comparable risks. The Value Line Investment

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1 Survey for Windows includes data on approximately 1700 firms. Excluded from the
2 selection process were companies incorporated in foreign countries and master limited
3 partnerships (MLPs).

4 **Q. How have you implemented the Comparable Earnings approach?**

5 A. In order to implement the Comparable Earnings approach, non-regulated companies were
6 selected from the Value Line Investment Survey for Windows that have six categories (see
7 Appendix J for definitions) of comparability designed to reflect the risk of the Electric
8 Group. These screening criteria were based upon the range as defined by the rankings of
9 the companies in the Electric Group. The items considered were: Timeliness Rank,
10 Safety Rank, Financial Strength, Price Stability, Value Line betas, and Technical Rank.
11 The specific companies comprising the Comparable Earnings group and their associated
12 rankings within the ranges are identified on page 1 of Schedule 11.

13 Value Line data was relied upon because it provides a comprehensive basis for
14 evaluating the risks of the comparable firms. As to the returns calculated by Value Line
15 for these companies, there is some downward bias in the figures shown on page 2 of
16 Schedule 11 because Value Line computes the returns on year-end rather than average
17 book value. If average book values had been employed, the rates of return would have
18 been slightly higher. Nevertheless, these are the returns considered by investors when
19 taking positions in these stocks. Finally, because many of the comparability factors, as
20 well as the published returns, are used by investors for selecting stocks, and to the extent
21 that investors rely on the Value Line service to gauge their returns, it is, therefore, an
22 appropriate database for measuring comparable return opportunities.

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1 **Q. What data have you used in your Comparable Earnings analysis?**

2 A. I have used both historical realized returns and forecast returns for non-utility companies.

3 As noted previously, I have not used returns for utility companies so as to avoid the

4 circularity that arises from using regulatory influenced returns to determine a regulated

5 return. It is appropriate to consider a relatively long measurement period in the

6 Comparable Earnings approach in order to cover conditions over an entire business cycle.

7 A ten-year period (5 historical years and 5 projected years) is sufficient to cover an

8 average business cycle. Unlike the DCF and CAPM, the results of the Comparable

9 Earnings method can be applied directly to the book value capitalization because the

10 nature of the analysis relates to book value. Hence, Comparable Earnings does not contain

11 the potential misspecification contained in market models when the market capitalization

12 and book value capitalization diverge significantly. The historical rate of return on book

13 common equity was 16.0% using the median value as shown on page 2 of Schedule 11.

14 The forecast rates of return as published by Value Line are shown by the 15.0% median

15 values also provided on page 2 of Schedule 11.

16 **Q. What rate of return on common equity have you determined in this case using the**
17 **Comparable Earnings approach?**

18 A. The average of the historical and forecast median rates of return is:

	<u>Historical</u>	<u>Forecast</u>	<u>Average</u>
Comparable Earnings Group	16.00%	15.00%	15.50%

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CONCLUSION

Q. What is your conclusion concerning the cost of equity for the Electric Group?

A. Based upon the application of a variety of methods and models described previously, it is my opinion that the cost of equity is 12.02% for the Electric Group. It is essential that the Commission employ a variety of techniques to measure the Company's cost of equity because of the limitations and infirmities that are inherent in each method. Indeed, my studies indicate that the cost of equity for the Electric Group is 12.02% ($10.39\% + 11.70\% + 10.47\% + 15.50\% = 48.06\% \div 4$) and is represented by the average of each of the methods/models that I previously discussed.

Q. Are adjustments to the Electric Group's results necessary to arrive at a cost of equity for Lockhart?

A. Yes. I made two adjustments in this regard.

Q. How is the 12.02% cost of equity for the Electric Group adjusted for Lockhart's 100% common equity?

A. In pioneering work, Nobel laureates Modigliani and Miller developed several theories about the role of leverage in a firm's capital structure. As part of that work, Modigliani and Miller established that as the borrowing of a firm increases, the expected return on stockholders' equity also increases.⁵ Likewise, the return on equity decreases when the financial leverage of a firm decreases. This principle is incorporated into the adjustment

⁵ Modigliani, F. and Miller, M.H. "The Cost of Capital, Corporation Finance, and the Theory of Investments." American Economic Review, June 1958, 261-297.

Modigliani, F. and Miller, M. H. "Taxes and the Cost of Capital: A Correction." American Economic Review, June 1963, 433-443.

DIRECT TESTIMONY OF PAUL R. MOUL

to the cost of equity for the Electric Group, and recognizes that the expected return on equity decreases when it is to be applied to 100% common equity.

Q. How can the Modigliani and Miller theory be applied to calculate the rate of return on common equity with 100% common equity?

A. First it is necessary to calculate the capital structure ratios for the Electric Group based upon the market value of their capitalization. By taking the "Fair Value of Financial Instruments" (Disclosures about Fair Value of Financial Instruments -- Statement of Financial Accounting Standards ("FAS") No. 107) shown in the annual report for these companies and the market value of the common equity using the price of stock, the capital structure ratios calculated from the market value of their securities are:

<u>Electric Group</u>	<u>Capitalization at Market Value (Fair Value)</u>
Long-term Debt	45.91%
Preferred Stock	0.55
Common Equity	<u>53.55</u>
Total	<u>100.00%</u>

With the capital ratios calculated above, the cost of equity for a firm without any leverage can be calculated. The cost of equity for an unleveraged firm using the capital structure ratios calculated with market values is:

$$k_u = k_e - (((k_u - i) \cdot 1 - t) \cdot D / E) - (k_u - d) \cdot P / E$$

$$9.65\% = 12.02\% - (((9.65\% - 5.48\%) \cdot .65) \cdot 45.91\% / 53.55\%) - (9.65\% - 6.04\%) \cdot 0.55\% / 53.55\%$$

DIRECT TESTIMONY OF PAUL R. MOUL

1 where ku = cost of equity for an all-equity firm, ke = market determined cost equity, i =
2 cost of debt⁶, d = dividend rate on preferred stock⁷, D = debt ratio, P = preferred stock
3 ratio, and E = common equity ratio. The formula shown above indicates that the cost of
4 equity for a firm with 100% equity is 9.65% using the market value of the Electric
5 Group's capitalization.

6 **Q. After adjustment for 100% common equity, would a 9.65% rate of return on**
7 **common equity be adequate for Lockhart?**

8 A. No. As the size of a firm decreases, its risk, and hence its required return increases. In his
9 discussion of the cost of capital, Professor Brigham has indicated that smaller firms have
10 higher capital costs than otherwise similar larger firms (see Fundamentals of Financial
11 Management, fifth edition, page 623). Also, the Fama/French study (see "The Cross-
12 Section of Expected Stock Returns"; The Journal of Finance, June 1992) established that
13 the size of a firm helps explain stock returns. In an October 15, 1995 article in Public
14 Utility Fortnightly, entitled Equity and the Small-Stock Effect, by Michael Annin, it was
15 demonstrated that the CAPM would understate the cost of equity significantly according to
16 a company's size.

17 **Q. How should the very small size of Lockhart be recognized in its equity return?**

18 A. The 2010 SBBI Yearbook provides size premiums for mid-cap, low-cap, and micro-cap
19 portfolios based upon returns in excess of the CAPM. The Electric Group has an average
20 market capitalization of its equity of \$16.264 billion, which would place it in the first

⁶ The cost of debt is the average yield on Moody's A rated public utility bonds.

⁷ The cost of preferred is the average yield on Moody's "a" rated preferred stock.

DIRECT TESTIMONY OF PAUL R. MOUL

1 decile according to the size of the companies traded on the NYSE, AMEX and NASDAQ.
2 Therefore, the Electric Group represents a large-cap portfolio. Lockhart, however, has
3 only \$26.7 million of common equity which would place it in the smallest (i.e., the tenth)
4 decile according to the 2010 SBBI Yearbook.

5 According to the 2010 SBBI Yearbook, the respective size premiums are 1.08% for
6 mid-cap companies, 1.85% for low-cap companies, and 3.99% for micro-cap companies.
7 Since the Company qualifies for the highest size adjustment attributed to companies in the
8 micro-cap group, the 3.99% size premium would produce a 13.64% (9.65% + 3.99%) rate
9 of return on common equity. However, adding 1.85% to the Company's rate of return on
10 common equity, which corresponds to the low-cap size premium, would produce a rate of
11 return on common equity 11.50% (9.65% + 1.85%). Between the size adjusted rate of
12 return on common equity of 11.50% using the low-cap adjustment and 13.64% using the
13 micro-cap adjustment, I recommend a 12.00% rate of return on common equity, which
14 gives more weight (i.e., 76.55%) to the low-cap adjustment but does not ignore the more
15 appropriate micro-cap adjustment.

16 **Q. Please summarize your recommendation concerning the appropriate rate of return**
17 **on common equity for the Company.**

18 A. Given the Company's risk traits enumerated earlier, its 100% common equity ratio, and its
19 extremely small size, a 12.00% rate of return on common equity is reasonable for
20 Lockhart. As Mr. Stone's testimony describes, the Company has taken a variety of
21 initiatives to provide its customers with reasonably priced energy that is less dependent
22 upon purchases from Duke. The Company has done so through reinvestment in its

DIRECT TESTIMONY OF PAUL R. MOUL

1 business by not paying a dividend to its Parent. The Commission should recognize these
2 initiatives when it considers the rate of return that should be granted in this proceeding.

3 **Q. Does this conclude your prepared direct testimony?**

4 **A. Yes.**

LOCKHART POWER COMPANY

Docket No. 2010-181-E

Exhibit to Accompany
the Direct Testimony

of

Paul R. Moul
Managing Consultant
P. Moul & Associates

Concerning

Cost of Equity

Lockhart Power Company

Index of Schedules

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Lockhart Power Company
Capitalization and Financial Statistics
2005-2009, Inclusive

	<u>2009</u>	<u>2008</u>	<u>2007</u>	<u>2006</u>	<u>2005</u>	
			(Millions of Dollars)			
Amount of Capital Employed						
Permanent Capital	\$ 26.7	\$ 24.3	\$ 21.8	\$ 19.7	\$ 17.6	
Short-Term Debt	\$ -	\$ -	\$ -	\$ -	\$ -	
Total Capital	<u>\$ 26.7</u>	<u>\$ 24.3</u>	<u>\$ 21.8</u>	<u>\$ 19.7</u>	<u>\$ 17.6</u>	
Dividend Payout Ratio	0.0%	0.0%	0.0%	0.0%	107.1%	<u>Average</u> 21.4%
Capital Structure Ratios						
Based on Permanent Capital:						
Common Equity	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>
	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>
Based on Total Capital:						
Common Equity	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>
	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>
Rate of Return on Book Common Equity	9.4%	10.8%	10.4%	11.0%	10.7%	10.5%
Operating Ratio ⁽¹⁾	85.3%	84.9%	86.6%	86.8%	85.4%	85.8%
Quality of Earnings & Cash Flow						
Effective Income Tax Rate	36.4%	37.2%	34.2%	31.8%	36.9%	35.3%
Internal Cash Generation/Construction ⁽²⁾	169.9%	200.0%	210.9%	99.7%	88.3%	153.8%

See Page 2 for Notes.

Lockhart Power Company
Capitalization and Financial Statistics
2005-2009, Inclusive

Notes:

- (1) Total operating expenses, maintenance, depreciation and taxes other than income as a percentage of operating revenues.
- (2) Internal cash generation/gross construction is the percentage of gross construction expenditures provided by internally generated funds from operations after payment of all cash dividends.

Source of Information: Audited Financial Statements

Electric Group
Capitalization and Financial Statistics ⁽¹⁾
2005-2009, Inclusive

	2009	2008	2007	2006	2005	
	(Millions of Dollars)					
Amount of Capital Employed						
Permanent Capital	\$ 23,649.3	\$ 21,754.1	\$ 19,778.0	\$ 21,418.5	\$ 19,277.8	
Short-Term Debt	\$ 564.3	\$ 833.6	\$ 708.3	\$ 797.5	\$ 621.9	
Total Capital	<u>\$ 24,213.6</u>	<u>\$ 22,587.7</u>	<u>\$ 20,486.3</u>	<u>\$ 22,216.0</u>	<u>\$ 19,899.7</u>	
Market-Based Financial Ratios						Average
Price-Earnings Multiple	14 x	15 x	15 x	16 x	16 x	15 x
Market/Book Ratio	144.7%	176.6%	199.4%	192.0%	198.5%	182.2%
Dividend Yield	5.5%	4.6%	3.9%	4.1%	4.1%	4.4%
Dividend Payout Ratio	73.1%	70.9%	58.3%	67.8%	65.4%	67.1%
Capital Structure Ratios						
Based on Permanent Capital:						
Long-Term Debt	55.6%	55.3%	52.9%	53.6%	55.4%	54.6%
Preferred Stock	0.8%	1.1%	1.3%	1.2%	1.3%	1.1%
Common Equity ⁽²⁾	<u>43.6%</u>	<u>43.7%</u>	<u>45.8%</u>	<u>45.1%</u>	<u>43.3%</u>	<u>44.3%</u>
	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>
Based on Total Capital:						
Total Debt incl. Short Term	56.6%	56.8%	54.6%	55.3%	56.9%	56.0%
Preferred Stock	0.8%	1.0%	1.2%	1.2%	1.3%	1.1%
Common Equity ⁽²⁾	<u>42.6%</u>	<u>42.2%</u>	<u>44.2%</u>	<u>43.6%</u>	<u>41.8%</u>	<u>42.9%</u>
	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>
Rate of Return on Book Common Equity ⁽²⁾	10.8%	12.0%	14.0%	11.9%	12.2%	12.2%
Operating Ratio ⁽³⁾	81.2%	82.3%	83.8%	83.2%	84.9%	83.1%
Coverage incl. AFUDC ⁽⁴⁾						
Pre-tax: All Interest Charges	3.19 x	3.36 x	3.55 x	3.09 x	3.01 x	3.24 x
Post-tax: All Interest Charges	2.49 x	2.61 x	2.73 x	2.47 x	2.53 x	2.57 x
Overall Coverage: All Int. & Pfd. Div.	2.43 x	2.55 x	2.68 x	2.42 x	2.48 x	2.51 x
Coverage excl. AFUDC ⁽⁴⁾						
Pre-tax: All Interest Charges	3.06 x	3.25 x	3.48 x	3.05 x	2.97 x	3.16 x
Post-tax: All Interest Charges	2.36 x	2.50 x	2.66 x	2.43 x	2.49 x	2.49 x
Overall Coverage: All Int. & Pfd. Div.	2.31 x	2.44 x	2.61 x	2.38 x	2.44 x	2.44 x
Quality of Earnings & Cash Flow						
AFC/Income Avail. for Common Equity	9.6%	8.2%	4.6%	2.8%	2.4%	5.5%
Effective Income Tax Rate	31.8%	32.3%	31.7%	29.9%	15.7%	28.3%
Internal Cash Generation/Construction ⁽⁵⁾	79.1%	68.3%	87.9%	95.7%	108.9%	88.0%
Gross Cash Flow/ Avg. Total Debt ⁽⁶⁾	21.3%	20.9%	22.5%	22.2%	20.6%	21.5%
Gross Cash Flow Interest Coverage ⁽⁷⁾	4.88 x	4.54 x	4.64 x	4.48 x	4.42 x	4.59 x
Common Dividend Coverage ⁽⁸⁾	3.95 x	3.62 x	4.03 x	4.01 x	3.71 x	3.86 x

See Page 2 for Notes.

Electric Group
Capitalization and Financial Statistics
2005-2009, Inclusive

Notes:

- (1) All capitalization and financial statistics for the group are the arithmetic average of the achieved results for each individual company in the group.
- (2) Excluding Accumulated Other Comprehensive Income ("OCI") from the equity account.
- (3) Total operating expenses, maintenance, depreciation and taxes other than income taxes as a percent of operating revenues.
- (4) Coverage calculations represent the number of times available earnings, both including and excluding AFUDC (allowance for funds used during construction) as reported in its entirety, cover fixed charges.
- (5) Internal cash generation/gross construction is the percentage of gross construction expenditures provided by internally-generated funds from operations after payment of all cash dividends divided by gross construction expenditures.
- (6) Gross Cash Flow (sum of net income, depreciation, amortization, net deferred income taxes and investment tax credits, less total AFUDC) plus interest charges, divided by interest charges.
- (7) Gross Cash Flow plus interest charges divided by interest charges.
- (8) Common dividend coverage is the relationship of internally-generated funds from operations after payment of preferred stock dividends to common dividends paid.

Basis of Selection:

The Electric Group includes companies reported in the basic service of The Value Line Investment Survey, within the group "Electric Utility Industry," their stock is traded on the New York Stock Exchange, they operate within the southeastern region as defined by the Federal Energy Regulatory Commission's Bureau of Power, and they are not currently the target of a merger or acquisition.

Ticker	Company	Corporate Credit Ratings		Stock Traded	S&P Stock Ranking	Value Line Beta
		Moody's	S&P			
D	Dominion Resources, Inc.	Baa1	A-	NYSE	B+	0.70
Duk	Duke Energy Corp.	A3	A-	NYSE	B	0.65
ETR	Entergy Corp.	Baa2	BBB	NYSE	A	0.70
NEE	NextEra Energy	A1	A	NYSE	A	0.75
PGN	Progress Energy	A3	BBB+	NYSE	B	0.60
SCG	SCANA Corp.	Baa1	BBB+	NYSE	B	0.70
SO	Southern Company	A2	A	NYSE	A-	0.55
TE	TECO Energy, Inc.	Baa1	BBB	NYSE	B	0.85
Average		<u>A3</u>	<u>BBB+</u>		<u>B+</u>	<u>0.69</u>

Note: Ratings are those of utility subsidiaries

Source of Information: Utility COMPUSTAT
Moody's Investors Service
Standard & Poor's Corporation
S&P Stock Guide

Standard & Poor's Public Utilities
Capitalization and Financial Statistics ⁽¹⁾
2005-2009, Inclusive

	2009	2008	2007	2006	2005	
			(Millions of Dollars)			
Amount of Capital Employed						
Permanent Capital	\$ 16,345.0	\$ 15,307.2	\$ 13,978.1	\$ 14,025.4	\$ 13,213.3	
Short-Term Debt	\$ 370.6	\$ 746.9	\$ 578.0	\$ 478.8	\$ 436.5	
Total Capital	<u>\$ 16,715.6</u>	<u>\$ 16,054.1</u>	<u>\$ 14,556.1</u>	<u>\$ 14,504.2</u>	<u>\$ 13,649.8</u>	
Market-Based Financial Ratios						Average
Price-Earnings Multiple	14 x	15 x	16 x	17 x	16 x	16 x
Market/Book Ratio	138.4%	184.8%	228.7%	217.3%	211.3%	198.1%
Dividend Yield	5.0%	4.1%	3.3%	3.7%	3.7%	4.0%
Dividend Payout Ratio	68.1%	60.6%	53.3%	61.6%	59.4%	60.6%
Capital Structure Ratios						
Based on Permanent Capital:						
Long-Term Debt	52.7%	53.7%	51.8%	53.0%	54.5%	53.1%
Preferred Stock	0.9%	1.0%	1.1%	1.2%	1.3%	1.1%
Common Equity ⁽²⁾	<u>46.3%</u>	<u>45.4%</u>	<u>47.1%</u>	<u>45.9%</u>	<u>44.2%</u>	<u>45.8%</u>
	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>
Based on Total Capital:						
Total Debt incl. Short Term	54.2%	56.6%	54.5%	55.1%	56.8%	55.4%
Preferred Stock	0.9%	1.0%	1.1%	1.1%	1.2%	1.1%
Common Equity ⁽²⁾	<u>44.9%</u>	<u>42.5%</u>	<u>44.5%</u>	<u>43.8%</u>	<u>41.9%</u>	<u>43.5%</u>
	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>
Rate of Return on Book Common Equity ⁽²⁾	10.0%	12.3%	13.1%	12.1%	11.2%	11.7%
Operating Ratio ⁽³⁾	82.9%	84.2%	84.3%	84.6%	86.0%	84.4%
Coverage incl. AFUDC ⁽⁴⁾						
Pre-tax: All Interest Charges	3.66 x	3.42 x	3.81 x	3.38 x	3.23 x	3.50 x
Post-tax: All Interest Charges	2.73 x	2.58 x	2.87 x	2.62 x	2.57 x	2.67 x
Overall Coverage: All Int. & Pfd. Div.	2.66 x	2.55 x	2.84 x	2.59 x	2.53 x	2.63 x
Coverage excl. AFUDC ⁽⁴⁾						
Pre-tax: All Interest Charges	3.56 x	3.31 x	3.73 x	3.33 x	3.19 x	3.42 x
Post-tax: All Interest Charges	2.63 x	2.47 x	2.79 x	2.57 x	2.53 x	2.60 x
Overall Coverage: All Int. & Pfd. Div.	2.56 x	2.44 x	2.75 x	2.54 x	2.49 x	2.56 x
Quality of Earnings & Cash Flow						
AFC/Income Avail. for Common Equity	7.6%	7.2%	5.0%	3.5%	1.0%	4.9%
Effective Income Tax Rate	31.6%	32.3%	34.1%	32.7%	29.4%	32.0%
Internal Cash Generation/Construction ⁽⁵⁾	90.5%	78.6%	82.3%	88.5%	101.9%	88.4%
Gross Cash Flow/ Avg. Total Debt ⁽⁶⁾	26.9%	24.7%	24.6%	22.6%	20.8%	23.9%
Gross Cash Flow Interest Coverage ⁽⁷⁾	5.65 x	5.13 x	4.94 x	4.49 x	4.40 x	4.92 x
Common Dividend Coverage ⁽⁸⁾	5.15 x	5.31 x	5.84 x	4.31 x	4.46 x	5.01 x

See Page 2 for Notes.

Standard & Poor's Public Utilities
Capitalization and Financial Statistics
2005-2009, Inclusive

Notes:

- (1) All capitalization and financial statistics for the group are the arithmetic average of the achieved results for each individual company in the group.
- (2) Excluding Accumulated Other Comprehensive Income ("OCI") from the equity account
- (3) Total operating expenses, maintenance, depreciation and taxes other than income taxes as a percent of operating revenues.
- (4) Coverage calculations represent the number of times available earnings, both including and excluding AFUDC (allowance for funds used during construction) as reported in its entirety, cover fixed charges.
- (5) Internal cash generation/gross construction is the percentage of gross construction expenditures provided by internally-generated funds from operations after payment of all cash dividends divided by gross construction expenditures.
- (6) Gross Cash Flow (sum of net income, depreciation, amortization, net deferred income taxes and investment tax credits, less total AFUDC) as a percentage of average total debt.
- (7) Gross Cash Flow (sum of net income, depreciation, amortization, net deferred income taxes and investment tax credits, less total AFUDC) plus interest charges, divided by interest charges.
- (8) Common dividend coverage is the relationship of internally-generated funds from operations after payment of preferred stock dividends to common dividends paid.

Source of Information: Annual Reports to Shareholders
Utility COMPUSTAT

Standard & Poor's Public Utilities

Company Identities ⁽¹⁾

	Ticker	Credit Rating ⁽²⁾		Common Stock Traded	S&P Stock Ranking	Value Line Beta
		Moody's	S&P			
Allegheny Energy	AYE	Baa3	BBB-	NYSE	B	1.00
Ameren Corporation	AEE	Baa2	BBB-	NYSE	B+	0.80
American Electric Power	AEP	Baa2	BBB	NYSE	B	0.70
CMS Energy	CMS	Baa2	BBB-	NYSE	B	0.80
CenterPoint Energy	CNP	Baa3	BBB	NYSE	B	0.80
Consolidated Edison	ED	A3	A-	NYSE	B+	0.65
Constellation Energy Group	CEG	Baa2	BBB	NYSE	B	0.80
DTE Energy Co.	DTE	Baa1	BBB	NYSE	B	0.75
Dominion Resources	D	Baa1	A-	NYSE	B+	0.70
Duke Energy	DUK	A3	A-	NYSE	B	0.65
Edison Int'l	EIX	A3	BBB+	NYSE	B	0.80
Entergy Corp.	ETR	Baa2	BBB	NYSE	A	0.70
EQT Corp.	EQT	Baa1	BBB	NYSE	B+	1.15
Exelon Corp.	EXC	A3	BBB	NYSE	B+	0.85
FPL Group	FPL	A1	A	NYSE	A	0.75
FirstEnergy Corp.	FE	Baa2	BBB	NYSE	A-	0.80
Integrus Energy Group	TEG	A2	A-	NYSE	B+	0.95
NICOR Inc.	GAS	A2	AA	NYSE	B	0.70
NiSource Inc.	NI	Baa2	BBB-	NYSE	B	0.85
Northeast Utilities	NU	Baa1	BBB	NYSE	B	0.70
PEPCO Holdings, Inc.	POM	Baa2	BBB	NYSE	B	0.80
PG&E Corp.	PCG	A3	BBB+	NYSE	B	0.55
PPL Corp.	PPL	Baa1	A-	NYSE	B+	0.70
Pinnacle West Capital	PNW	Baa2	BBB-	NYSE	B	0.75
Progress Energy, Inc.	PGN	A3	BBB+	NYSE	B	0.65
Public Serv. Enterprise Inc.	PEG	Baa1	BBB	NYSE	B+	0.80
Questar Corp.	STR	A3	BBB+	NYSE	A	1.20
SCANA Corp.	SCG	Baa1	BBB+	NYSE	B	0.65
Sempra Energy	SRE	A2	A	NYSE	B+	0.85
Southern Co.	SO	A2	A	NYSE	A-	0.55
TECO Energy	TE	Baa1	BBB	NYSE	B	0.85
Wisconsin Energy Corp.	WEC	A1	A-	NYSE	B+	0.65
Xcel Energy Inc	XEL	A3	BBB+	NYSE	B	0.65
Average for S&P Utilities		<u>Baa1</u>	<u>BBB+</u>		<u>B+</u>	<u>0.77</u>

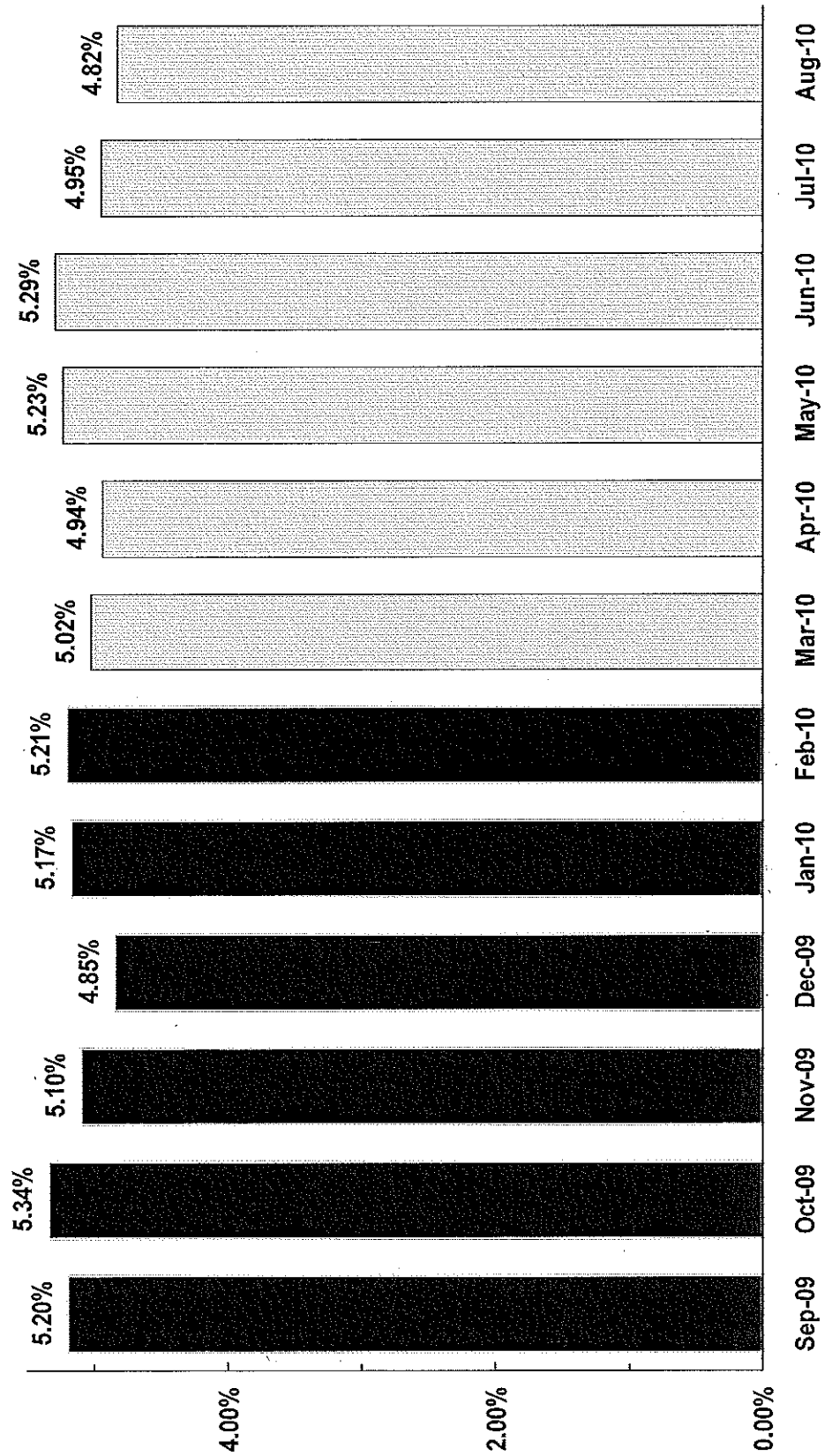
Note: ⁽¹⁾ Includes companies contained in S&P Utility Compustat. AES Corp. and Dynegy, Inc. are not included.

⁽²⁾ Ratings are those of utility subsidiaries

Source of Information: Moody's Investors Service
Standard & Poor's Corporation
Standard & Poor's Stock Guide
Value Line Investment Survey for Windows

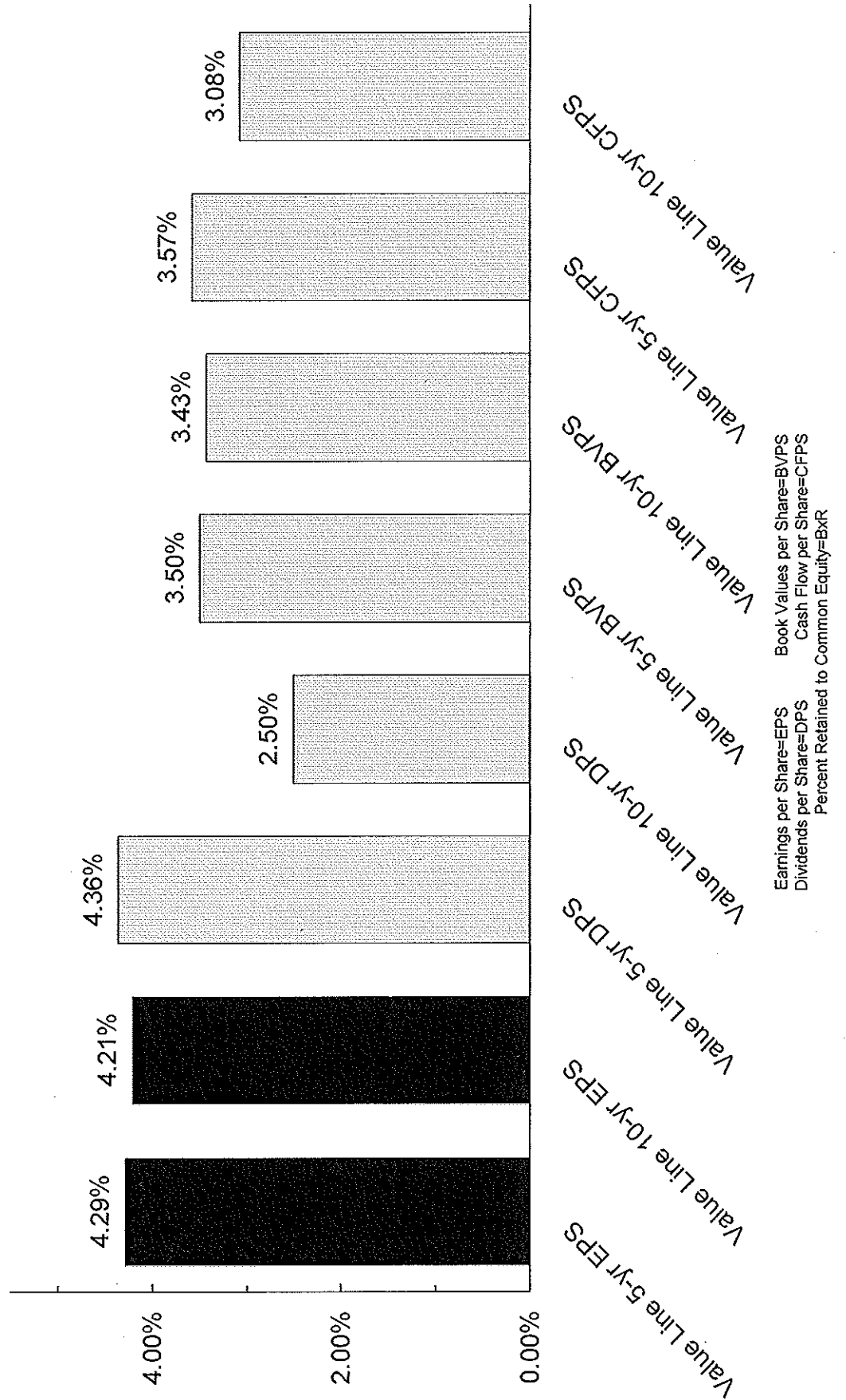
Electric Group

Monthly Dividend Yields



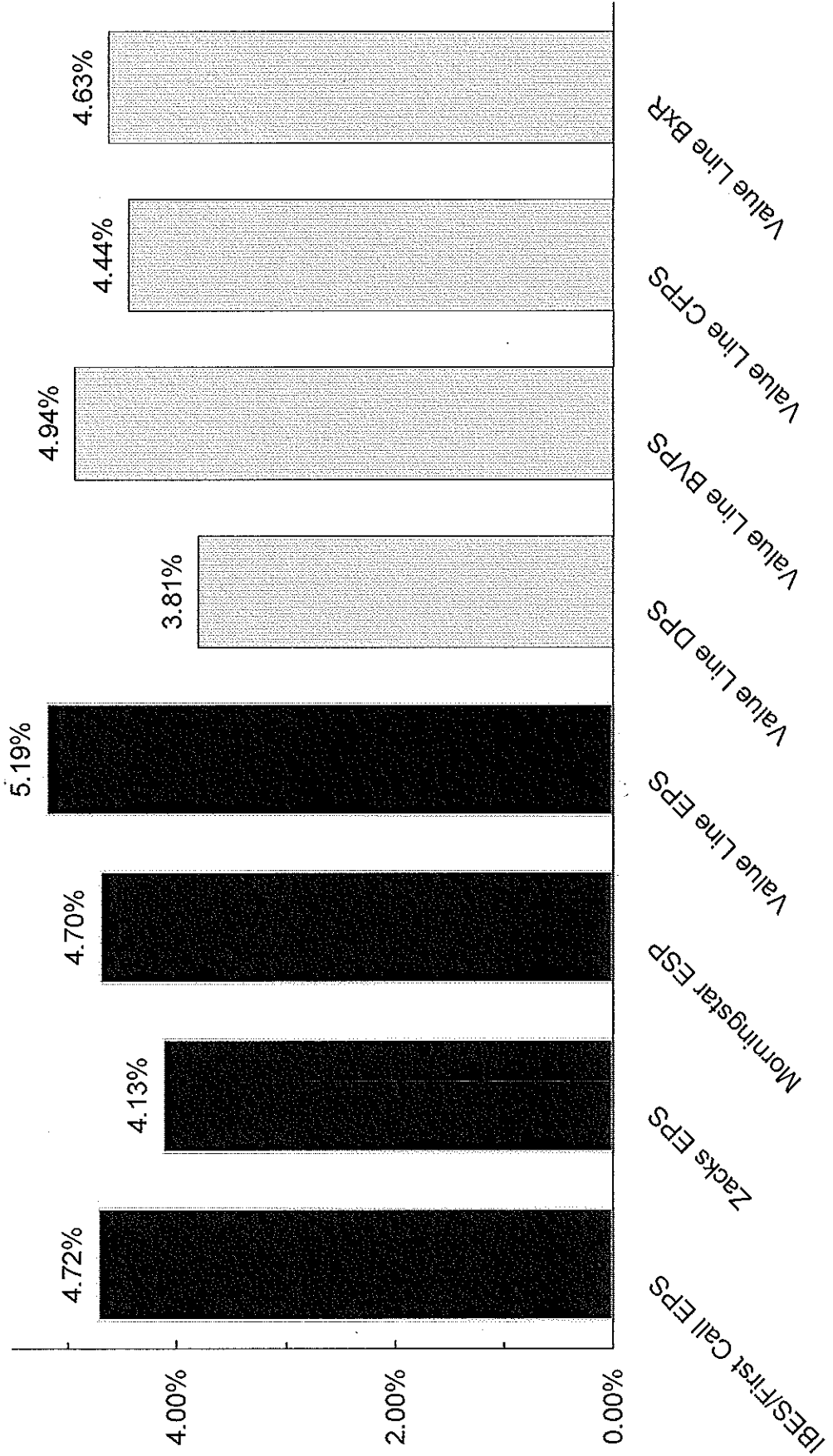
Electric Group

Historical Growth Rates



Electric Group

Five-Year Projected Growth Rates

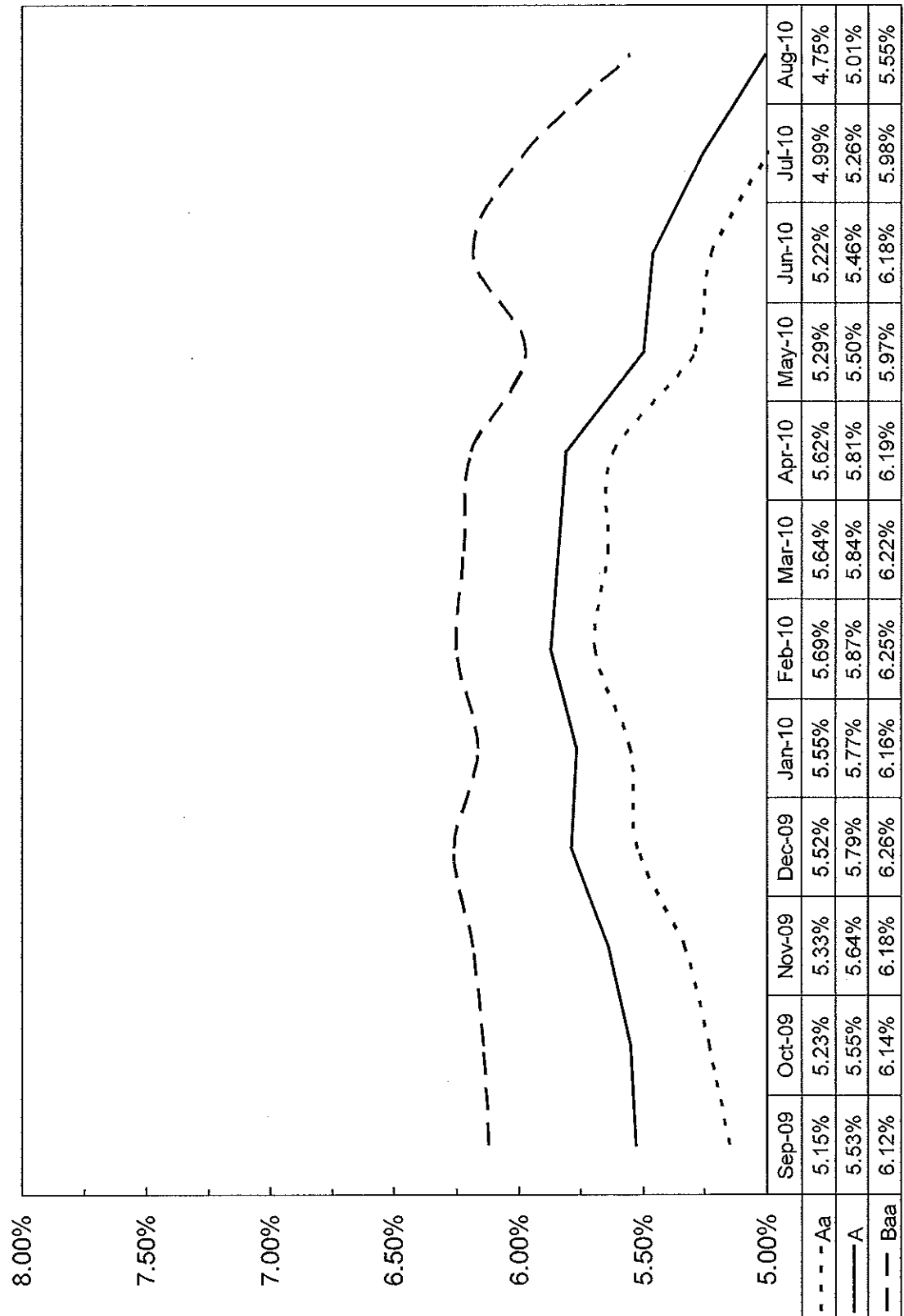


Earnings per Share=EPS Book Values per Share=BVPS
 Dividends per Share=DPS Cash Flow per Share=CFPS
 Percent Retained to Common Equity=BxR

Analysis of Public Offerings of Common Stock
Years 2004-2008

	Hawaiian Electric	ConEdison	Great Plains	Constellation	Ameren	CMS Energy	Offertail	Idacorp	Cinergy	Cinergy	CMS Energy
Date of Offering	3/10/2004	4/11/2004	6/8/2004	6/28/2004	6/30/2004	10/7/2004	12/7/2004	12/9/2004	12/15/2004	1/28/2005	3/30/2005
No. of shares offered (000)	2,000	14,000	6,000	6,000	10,000	28,500	2,900	3,500	6,100	3,399	20,000
Dollar amt. of offering (\$000)	\$ 103,720	\$ 528,360	\$ 150,000	\$ 227,700	\$ 420,000	\$ 259,350	\$ 73,805	\$ 105,000	\$ 250,100	\$ 169,950	\$ 245,000
Price to public	\$ 51.860	\$ 37.750	\$ 25.000	\$ 37.950	\$ 42.000	\$ 9.100	\$ 25.450	\$ 30.000	\$ 41.000	\$ 50.000	\$ 12.250
Underwriter's discounts and commission	\$ 2.074	\$ 1.132	\$ 0.750	\$ 0.140	\$ 1.260	\$ 0.319	\$ 0.950	\$ 1.200	\$ 0.490	\$ 1.500	\$ 0.429
Gross Proceeds	\$ 49.786	\$ 36.618	\$ 24.250	\$ 37.810	\$ 40.740	\$ 8.781	\$ 24.500	\$ 28.800	\$ 40.510	\$ 48.500	\$ 11.821
Estimated company issuance expenses	\$ 0.075	\$ 0.029	\$ 0.083	\$ 0.042	\$ 0.040	\$ 0.011	\$ 0.103	\$ 0.086	\$ 0.033	\$ 0.221	\$ 0.012
Net proceeds to company per share	\$ 49.711	\$ 36.589	\$ 24.167	\$ 37.768	\$ 40.700	\$ 8.770	\$ 24.397	\$ 28.714	\$ 40.477	\$ 48.279	\$ 11.809
Underwriter's discount as a percent of offering price	4.0%	3.0%	3.0%	0.4%	3.0%	3.5%	3.7%	4.0%	1.2%	3.0%	3.5%
Issuance expense as a percent of offering price	0.1%	0.1%	0.3%	0.1%	0.1%	0.1%	0.4%	0.3%	0.1%	0.4%	0.1%
Total issuance and selling expense as a percent of offering price	4.1%	3.1%	3.3%	0.5%	3.1%	3.6%	4.1%	4.3%	1.3%	3.4%	3.6%
	Pinnacle West	Puget Energy	WPS Resources	Northeast Utilities	Vectren Corp	Energy East	Empire District	ITC Holdings	Offertail Corp	OGE Energy	PNM Resources
Date of Offering	4/27/2005	11/1/2005	11/27/2005	12/12/2006	2/22/2007	3/21/2007	12/6/2007	1/18/2008	9/19/2008	11/20/2008	11/27/2008
No. of shares offered (000)	5,300	15,000	1,900	20,000	4,600	9,000	3,000	5,583	4,500	2,500	3,417
Dollar amt. of offering (\$000)	\$ 222,600	\$ 312,000	\$ 102,030	\$ 381,800	\$ 130,318	\$ 218,250	\$ 69,000	\$ 291,669	\$ 135,000	\$ 82,500	\$ 27,883
Price to public	\$ 42.000	\$ 20.800	\$ 53.700	\$ 19.090	\$ 28.330	\$ 24.250	\$ 23.000	\$ 50.150	\$ 30.000	\$ 25.000	\$ 8.160
Underwriter's discounts and commission	\$ 1.365	\$ 0.130	\$ 1.745	\$ 0.620	\$ 0.990	\$ 0.728	\$ 0.997	\$ 2.131	\$ 1.088	\$ 1.500	\$ -
Gross Proceeds	\$ 40.635	\$ 20.670	\$ 51.955	\$ 18.470	\$ 27.340	\$ 23.522	\$ 22.003	\$ 48.019	\$ 28.913	\$ 23.500	\$ 8.160
Estimated company issuance expenses	\$ 0.047	\$ 0.020	NA	\$ 0.017	\$ 0.092	\$ 0.018	\$ 0.083	\$ 0.161	\$ 0.089	\$ 0.058	N/A
Net proceeds to company per share	\$ 40.588	\$ 20.670	\$ 51.955	\$ 18.453	\$ 27.248	\$ 23.504	\$ 21.920	\$ 47.858	\$ 28.824	\$ 23.442	\$ 8.160
Underwriter's discount as a percent of offering price	3.3%	0.6%	3.2%	3.2%	3.5%	3.0%	4.3%	4.2%	3.6%	6.0%	0.0%
Issuance expense as a percent of offering price	0.1%	0.1%	NA	0.1%	0.3%	0.1%	0.4%	0.3%	0.3%	0.2%	N/A
Total issuance and selling expense as a percent of offering price	3.4%	0.7%	3.2%	3.3%	3.8%	3.1%	4.7%	4.5%	3.9%	6.2%	0.0%
	IDACORP										
Date of Offering	12/5/2008										
No. of shares offered (000)	3,000										
Dollar amt. of offering (\$000)	\$ 85,215										
Price to public	\$ 28.405										
Underwriter's discounts and commission	\$ 0.284										
Gross Proceeds	\$ 28.121										
Estimated company issuance expenses	N/A										
Net proceeds to company per share	\$ 28.121										
			Average								
Underwriter's discount as a percent of offering price	1.0%		3.0%								
Issuance expense as a percent of offering price	N/A		0.2%								
Total issuance and selling expense as a percent of offering price	1.0%		3.2%								

Interest Rates for Investment Grade Public Utility Bonds

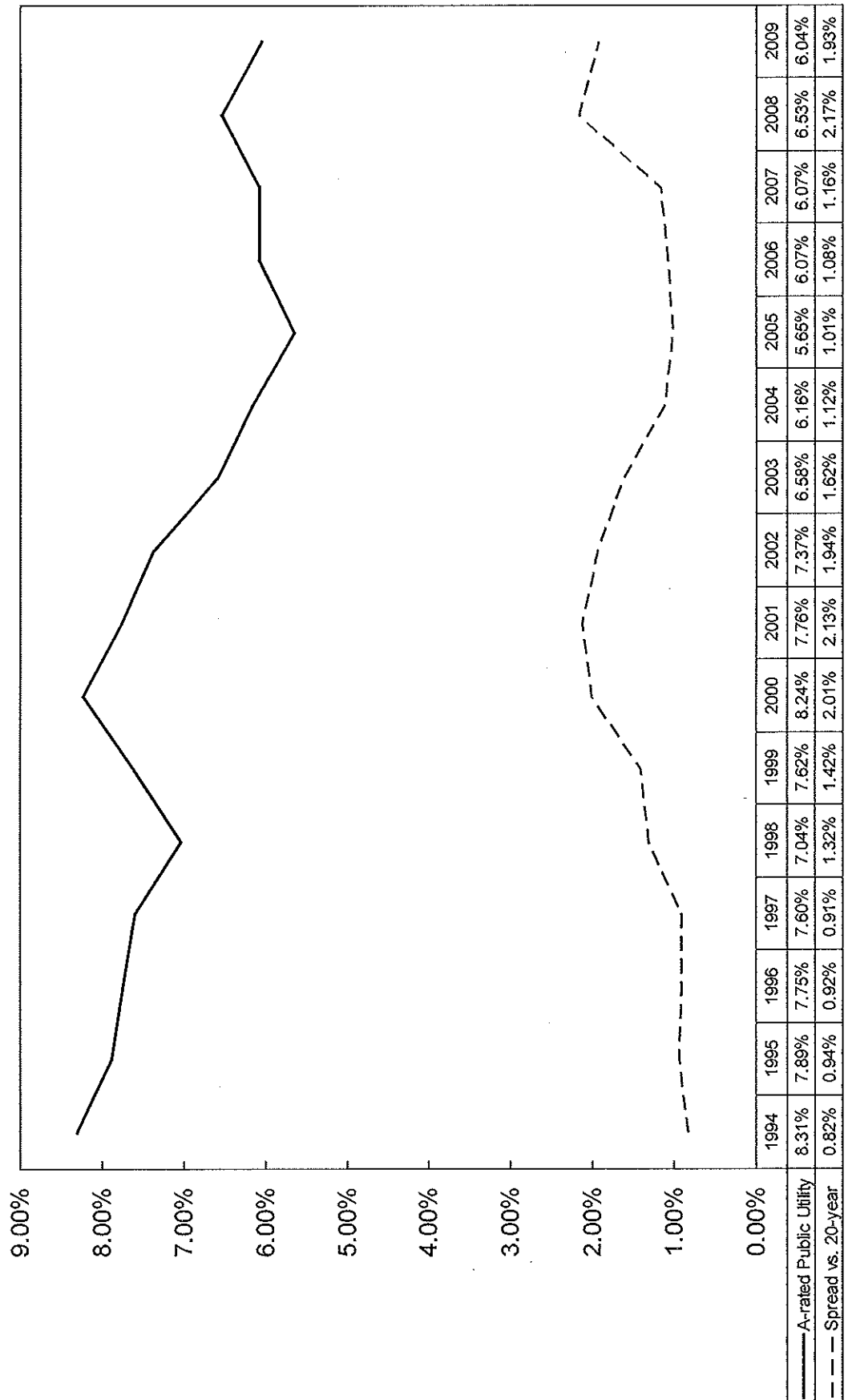


**Interest Rates for Investment Grade Public Utility Bonds
Yearly for 2005-2009
and the Twelve Months Ended August 2010**

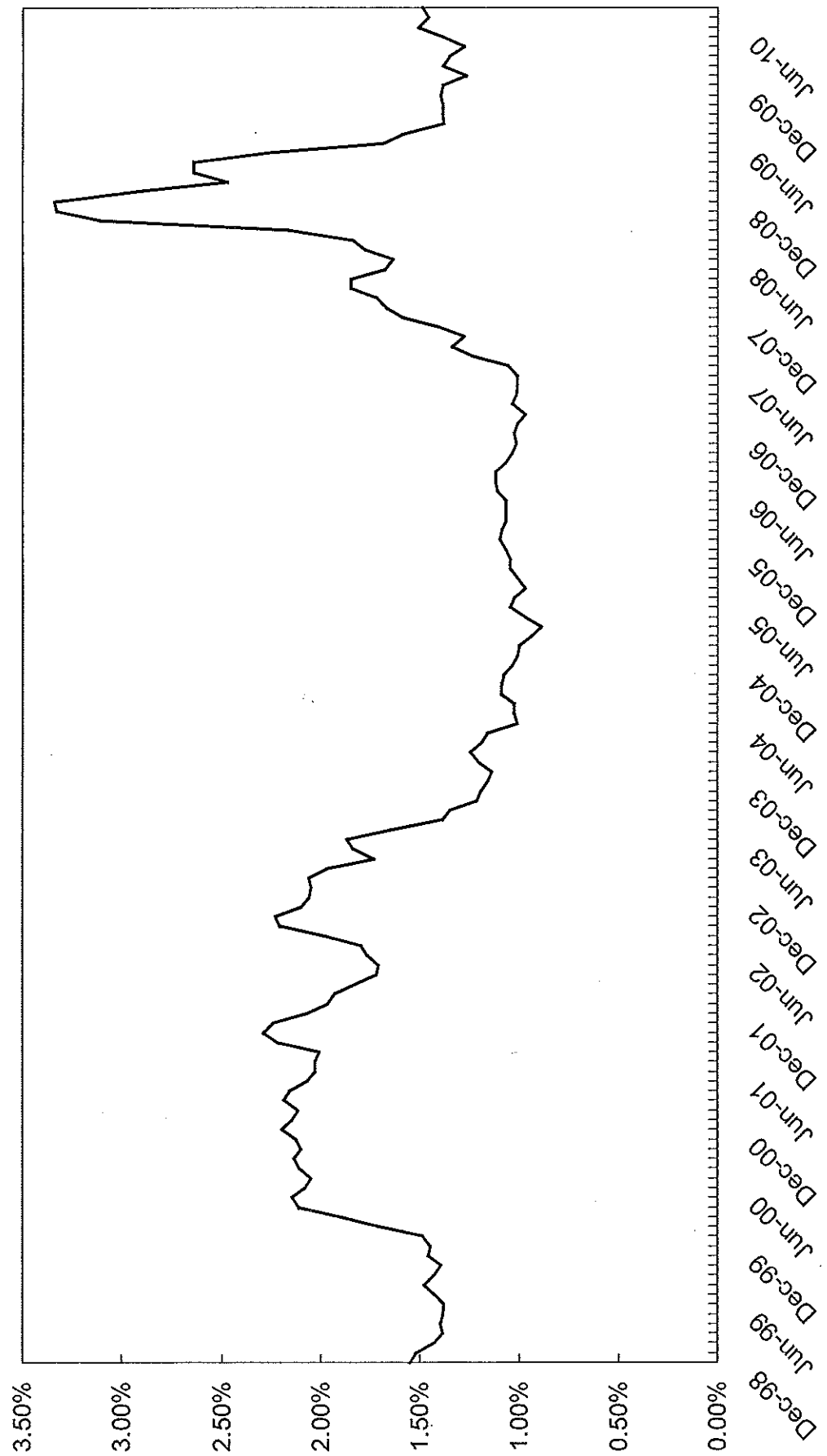
<u>Years</u>	<u>Aa Rated</u>	<u>A Rated</u>	<u>Baa Rated</u>	<u>Average</u>
2005	5.44%	5.65%	5.93%	5.67%
2006	5.84%	6.07%	6.32%	6.08%
2007	5.94%	6.07%	6.33%	6.11%
2008	6.18%	6.53%	7.24%	6.65%
2009	5.75%	6.04%	7.06%	6.28%
Five-Year Average	<u>5.83%</u>	<u>6.07%</u>	<u>6.58%</u>	<u>6.16%</u>
<u>Months</u>				
Sep-09	5.15%	5.53%	6.12%	5.60%
Oct-09	5.23%	5.55%	6.14%	5.64%
Nov-09	5.33%	5.64%	6.18%	5.71%
Dec-09	5.52%	5.79%	6.26%	5.86%
Jan-10	5.55%	5.77%	6.16%	5.83%
Feb-10	5.69%	5.87%	6.25%	5.94%
Mar-10	5.64%	5.84%	6.22%	5.90%
Apr-10	5.62%	5.81%	6.19%	5.87%
May-10	5.29%	5.50%	5.97%	5.59%
Jun-10	5.22%	5.46%	6.18%	5.62%
Jul-10	4.99%	5.26%	5.98%	5.41%
Aug-10	4.75%	5.01%	5.55%	5.10%
Twelve-Month Average	<u>5.33%</u>	<u>5.59%</u>	<u>6.10%</u>	<u>5.67%</u>
Six-Month Average	<u>5.25%</u>	<u>5.48%</u>	<u>6.02%</u>	<u>5.58%</u>
Three-Month Average	<u>4.99%</u>	<u>5.24%</u>	<u>5.90%</u>	<u>5.38%</u>

Source: Mergent Bond Record

Yields on A-rated Public Utility Bonds and Spreads over 20-Year Treasuries



Interest Rate Spreads A-rated Public Utility Bonds over 20-Year Treasuries



A rated Public Utility Bonds over 20-Year Treasuries

Year	A-rated Public Utility	20-Year Treasuries		Year	A-rated Public Utility	20-Year Treasuries		Year	A-rated Public Utility	20-Year Treasuries	
		Yield	Spread			Yield	Spread			Yield	Spread
Dec-98	6.91%	5.36%	1.55%								
Jan-99	6.97%	5.45%	1.52%	Jan-03	7.07%	5.02%	2.05%	Jan-07	5.96%	4.95%	1.01%
Feb-99	7.09%	5.66%	1.43%	Feb-03	6.93%	4.87%	2.06%	Feb-07	5.90%	4.93%	0.97%
Mar-99	7.26%	5.87%	1.39%	Mar-03	6.79%	4.82%	1.97%	Mar-07	5.85%	4.81%	1.04%
Apr-99	7.22%	5.82%	1.40%	Apr-03	6.64%	4.91%	1.73%	Apr-07	5.97%	4.95%	1.02%
May-99	7.47%	6.08%	1.39%	May-03	6.36%	4.52%	1.84%	May-07	5.99%	4.98%	1.01%
Jun-99	7.74%	6.36%	1.38%	Jun-03	6.21%	4.34%	1.87%	Jun-07	6.30%	5.29%	1.01%
Jul-99	7.71%	6.28%	1.43%	Jul-03	6.57%	4.92%	1.65%	Jul-07	6.25%	5.19%	1.06%
Aug-99	7.91%	6.43%	1.48%	Aug-03	6.78%	5.39%	1.39%	Aug-07	6.24%	5.00%	1.24%
Sep-99	7.93%	6.50%	1.43%	Sep-03	6.56%	5.21%	1.35%	Sep-07	6.18%	4.84%	1.34%
Oct-99	8.06%	6.66%	1.40%	Oct-03	6.43%	5.21%	1.22%	Oct-07	6.11%	4.83%	1.28%
Nov-99	7.94%	6.48%	1.46%	Nov-03	6.37%	5.17%	1.20%	Nov-07	5.97%	4.56%	1.41%
Dec-99	8.14%	6.69%	1.45%	Dec-03	6.27%	5.11%	1.16%	Dec-07	6.16%	4.57%	1.59%
Jan-00	8.35%	6.86%	1.49%	Jan-04	6.15%	5.01%	1.14%	Jan-08	6.02%	4.35%	1.67%
Feb-00	8.26%	6.54%	1.71%	Feb-04	6.15%	4.94%	1.21%	Feb-08	6.21%	4.49%	1.72%
Mar-00	8.28%	6.38%	1.90%	Mar-04	5.97%	4.72%	1.25%	Mar-08	6.21%	4.36%	1.85%
Apr-00	8.29%	6.18%	2.11%	Apr-04	6.35%	5.16%	1.19%	Apr-08	6.29%	4.44%	1.85%
May-00	8.70%	6.55%	2.15%	May-04	6.62%	5.46%	1.16%	May-08	6.28%	4.60%	1.68%
Jun-00	8.36%	6.28%	2.08%	Jun-04	6.46%	5.45%	1.01%	Jun-08	6.38%	4.74%	1.64%
Jul-00	8.25%	6.20%	2.05%	Jul-04	6.27%	5.24%	1.03%	Jul-08	6.40%	4.62%	1.78%
Aug-00	8.13%	6.02%	2.11%	Aug-04	6.14%	5.07%	1.07%	Aug-08	6.37%	4.53%	1.84%
Sep-00	8.23%	6.09%	2.14%	Sep-04	5.98%	4.89%	1.09%	Sep-08	6.49%	4.32%	2.17%
Oct-00	8.14%	6.04%	2.10%	Oct-04	5.94%	4.85%	1.09%	Oct-08	7.56%	4.45%	3.11%
Nov-00	8.11%	5.98%	2.13%	Nov-04	5.97%	4.89%	1.08%	Nov-08	7.60%	4.27%	3.33%
Dec-00	7.84%	5.64%	2.20%	Dec-04	5.92%	4.88%	1.04%	Dec-08	6.52%	3.18%	3.34%
Jan-01	7.80%	5.65%	2.15%	Jan-05	5.78%	4.77%	1.01%	Jan-09	6.39%	3.46%	2.93%
Feb-01	7.74%	5.62%	2.12%	Feb-05	5.61%	4.61%	1.00%	Feb-09	6.30%	3.83%	2.47%
Mar-01	7.68%	5.49%	2.19%	Mar-05	5.83%	4.89%	0.94%	Mar-09	6.42%	3.78%	2.64%
Apr-01	7.94%	5.78%	2.16%	Apr-05	5.64%	4.76%	0.89%	Apr-09	6.48%	3.84%	2.64%
May-01	7.99%	5.92%	2.07%	May-05	5.53%	4.56%	0.97%	May-09	6.49%	4.22%	2.27%
Jun-01	7.85%	5.82%	2.03%	Jun-05	5.40%	4.35%	1.05%	Jun-09	6.20%	4.51%	1.69%
Jul-01	7.78%	5.75%	2.03%	Jul-05	5.51%	4.48%	1.03%	Jul-09	5.97%	4.38%	1.59%
Aug-01	7.59%	5.58%	2.01%	Aug-05	5.50%	4.53%	0.97%	Aug-09	5.71%	4.33%	1.38%
Sep-01	7.75%	5.53%	2.22%	Sep-05	5.52%	4.51%	1.01%	Sep-09	5.53%	4.14%	1.39%
Oct-01	7.63%	5.34%	2.29%	Oct-05	5.79%	4.74%	1.05%	Oct-09	5.55%	4.16%	1.39%
Nov-01	7.57%	5.33%	2.24%	Nov-05	5.88%	4.83%	1.05%	Nov-09	5.64%	4.24%	1.40%
Dec-01	7.83%	5.76%	2.07%	Dec-05	5.80%	4.73%	1.07%	Dec-09	5.79%	4.40%	1.39%
Jan-02	7.86%	5.89%	1.97%	Jan-06	5.75%	4.65%	1.10%	Jan-10	5.77%	4.50%	1.27%
Feb-02	7.54%	5.61%	1.93%	Feb-06	5.82%	4.73%	1.09%	Feb-10	5.87%	4.48%	1.39%
Mar-02	7.76%	5.93%	1.83%	Mar-06	5.98%	4.91%	1.07%	Mar-10	5.84%	4.49%	1.35%
Apr-02	7.57%	5.85%	1.72%	Apr-06	6.29%	5.22%	1.07%	Apr-10	5.81%	4.53%	1.28%
May-02	7.52%	5.81%	1.71%	May-06	6.42%	5.35%	1.07%	May-10	5.50%	4.11%	1.39%
Jun-02	7.42%	5.65%	1.77%	Jun-06	6.40%	5.29%	1.11%	Jun-10	5.46%	3.95%	1.51%
Jul-02	7.31%	5.51%	1.80%	Jul-06	6.37%	5.25%	1.12%	Jul-10	5.26%	3.80%	1.46%
Aug-02	7.17%	5.19%	1.98%	Aug-06	6.20%	5.08%	1.12%	Aug-10	5.01%	3.52%	1.49%
Sep-02	7.08%	4.87%	2.21%	Sep-06	6.00%	4.93%	1.07%	Average:			
Oct-02	7.23%	5.00%	2.23%	Oct-06	5.98%	4.94%	1.04%	12-months			1.39%
Nov-02	7.14%	5.04%	2.10%	Nov-06	5.80%	4.78%	1.02%	6-months			1.41%
Dec-02	7.07%	5.01%	2.06%	Dec-06	5.81%	4.78%	1.03%	3-months			1.49%

S&P Composite Index and S&P Public Utility Index
Long-Term Corporate and Public Utility Bonds
Yearly Total Returns
1928-2007

Year	S & P Composite Index	S & P Public Utility Index	Long Term Corporate Bonds	Public Utility Bonds
1928	43.61%	57.47%	2.84%	3.08%
1929	-8.42%	11.02%	3.27%	2.34%
1930	-24.90%	-21.96%	7.98%	4.74%
1931	-43.34%	-35.90%	-1.85%	-11.11%
1932	-8.19%	-0.54%	10.82%	7.25%
1933	53.99%	-21.87%	10.38%	-3.82%
1934	-1.44%	-20.41%	13.84%	22.61%
1935	47.67%	76.63%	9.61%	16.03%
1936	33.92%	20.69%	6.74%	8.30%
1937	-35.03%	-37.04%	2.75%	-4.05%
1938	31.12%	22.45%	6.13%	8.11%
1939	-0.41%	11.26%	3.97%	6.76%
1940	-9.78%	-17.15%	3.39%	4.45%
1941	-11.59%	-31.57%	2.73%	2.15%
1942	20.34%	15.39%	2.60%	3.81%
1943	25.90%	46.07%	2.83%	7.04%
1944	19.75%	18.03%	4.73%	3.29%
1945	36.44%	53.33%	4.08%	5.92%
1946	-8.07%	1.26%	1.72%	2.98%
1947	5.71%	-13.16%	-2.34%	-2.19%
1948	5.50%	4.01%	4.14%	2.65%
1949	18.79%	31.39%	3.31%	7.16%
1950	31.71%	3.25%	2.12%	2.01%
1951	24.02%	18.63%	-2.69%	-2.77%
1952	18.37%	19.25%	3.52%	2.99%
1953	-0.99%	7.85%	3.41%	2.08%
1954	52.62%	24.72%	5.39%	7.57%
1955	31.56%	11.26%	0.48%	0.12%
1956	6.56%	5.06%	-6.81%	-6.25%
1957	-10.78%	6.36%	8.71%	3.58%
1958	43.36%	40.70%	-2.22%	0.18%
1959	11.96%	7.49%	-0.97%	-2.29%
1960	0.47%	20.26%	9.07%	9.01%
1961	26.89%	29.33%	4.82%	4.65%
1962	-8.73%	-2.44%	7.95%	6.55%
1963	22.80%	12.36%	2.19%	3.44%
1964	16.48%	15.81%	4.77%	4.94%
1965	12.45%	4.67%	-0.46%	0.50%
1966	-10.06%	-4.48%	0.20%	-3.45%
1967	23.98%	-0.63%	-4.95%	-3.63%
1968	11.06%	10.32%	2.57%	1.87%
1969	-8.50%	-15.42%	-8.09%	-6.66%
1970	4.01%	16.56%	18.37%	15.90%
1971	14.31%	2.41%	11.01%	11.59%
1972	18.98%	8.15%	7.26%	7.19%
1973	-14.66%	-18.07%	1.14%	2.42%
1974	-26.47%	-21.55%	-3.06%	-5.28%
1975	37.20%	44.49%	14.64%	15.50%
1976	23.84%	31.81%	18.65%	19.04%
1977	-7.18%	8.64%	1.71%	5.22%
1978	6.56%	-3.71%	-0.07%	-0.98%
1979	18.44%	13.58%	-4.18%	-2.75%
1980	32.42%	15.08%	-2.76%	-0.23%
1981	-4.91%	11.74%	-1.24%	4.27%
1982	21.41%	26.52%	42.56%	33.52%
1983	22.51%	20.01%	6.26%	10.33%
1984	6.27%	26.04%	16.86%	14.82%
1985	32.16%	33.05%	30.09%	26.48%
1986	18.47%	28.53%	19.85%	18.16%
1987	5.23%	-2.92%	-0.27%	3.02%
1988	16.81%	18.27%	10.70%	10.19%
1989	31.49%	47.80%	16.23%	15.61%
1990	-3.17%	-2.57%	6.78%	8.13%
1991	30.55%	14.61%	19.89%	19.25%
1992	7.67%	8.10%	9.39%	8.65%
1993	9.99%	14.41%	13.19%	10.59%
1994	1.31%	-7.94%	-5.76%	-4.72%
1995	37.43%	42.15%	27.20%	22.81%
1996	23.07%	3.14%	1.40%	3.04%
1997	33.36%	24.69%	12.95%	11.39%
1998	28.58%	14.82%	10.76%	9.44%
1999	21.04%	-8.85%	-7.45%	-1.69%
2000	-9.11%	59.70%	12.87%	9.45%
2001	-11.88%	-30.41%	10.65%	5.85%
2002	-22.10%	-30.04%	16.33%	1.63%
2003	28.70%	26.11%	5.27%	10.01%
2004	10.87%	24.22%	8.72%	6.03%
2005	4.91%	16.79%	5.87%	3.02%
2006	15.80%	20.95%	3.24%	3.94%
2007	5.49%	19.39%	2.60%	5.20%
Geometric Mean	10.04%	8.92%	5.81%	5.45%
Arithmetic Mean	11.95%	11.24%	6.13%	5.72%
Standard Deviation	20.02%	22.43%	8.52%	7.84%
Median	13.38%	12.05%	4.11%	4.55%

**Tabulation of Risk Rate Differentials for
S&P Public Utility Index and Public Utility Bonds
For the Years 1928-2007, 1952-2007, 1974-2007, and 1979-2007**

<u>Total Returns</u>	<u>Range</u>		<u>Midpoint</u>	<u>Point Estimate</u>	<u>Average of the Midpoint of Range and Point Estimate</u>
	<u>Geometric Mean</u>	<u>Median</u>		<u>Arithmetic Mean</u>	
<u>1928-2007</u>					
S&P Public Utility Index	8.92%	12.05%		11.24%	
Public Utility Bonds	<u>5.45%</u>	<u>4.55%</u>		<u>5.72%</u>	
Risk Differential	<u>3.47%</u>	<u>7.50%</u>	<u>5.49%</u>	<u>5.52%</u>	<u>5.51%</u>
<u>1952-2007</u>					
S&P Public Utility Index	11.14%	14.00%		12.65%	
Public Utility Bonds	<u>6.15%</u>	<u>5.07%</u>		<u>6.45%</u>	
Risk Differential	<u>4.99%</u>	<u>8.93%</u>	<u>6.96%</u>	<u>6.20%</u>	<u>6.58%</u>
<u>1974-2007</u>					
S&P Public Utility Index	12.98%	15.94%		14.90%	
Public Utility Bonds	<u>8.45%</u>	<u>8.39%</u>		<u>8.79%</u>	
Risk Differential	<u>4.53%</u>	<u>7.55%</u>	<u>6.04%</u>	<u>6.11%</u>	<u>6.08%</u>
<u>1979-2007</u>					
S&P Public Utility Index	13.62%	16.79%		15.41%	
Public Utility Bonds	<u>8.83%</u>	<u>8.65%</u>		<u>9.15%</u>	
Risk Differential	<u>4.79%</u>	<u>8.14%</u>	<u>6.47%</u>	<u>6.26%</u>	<u>6.37%</u>

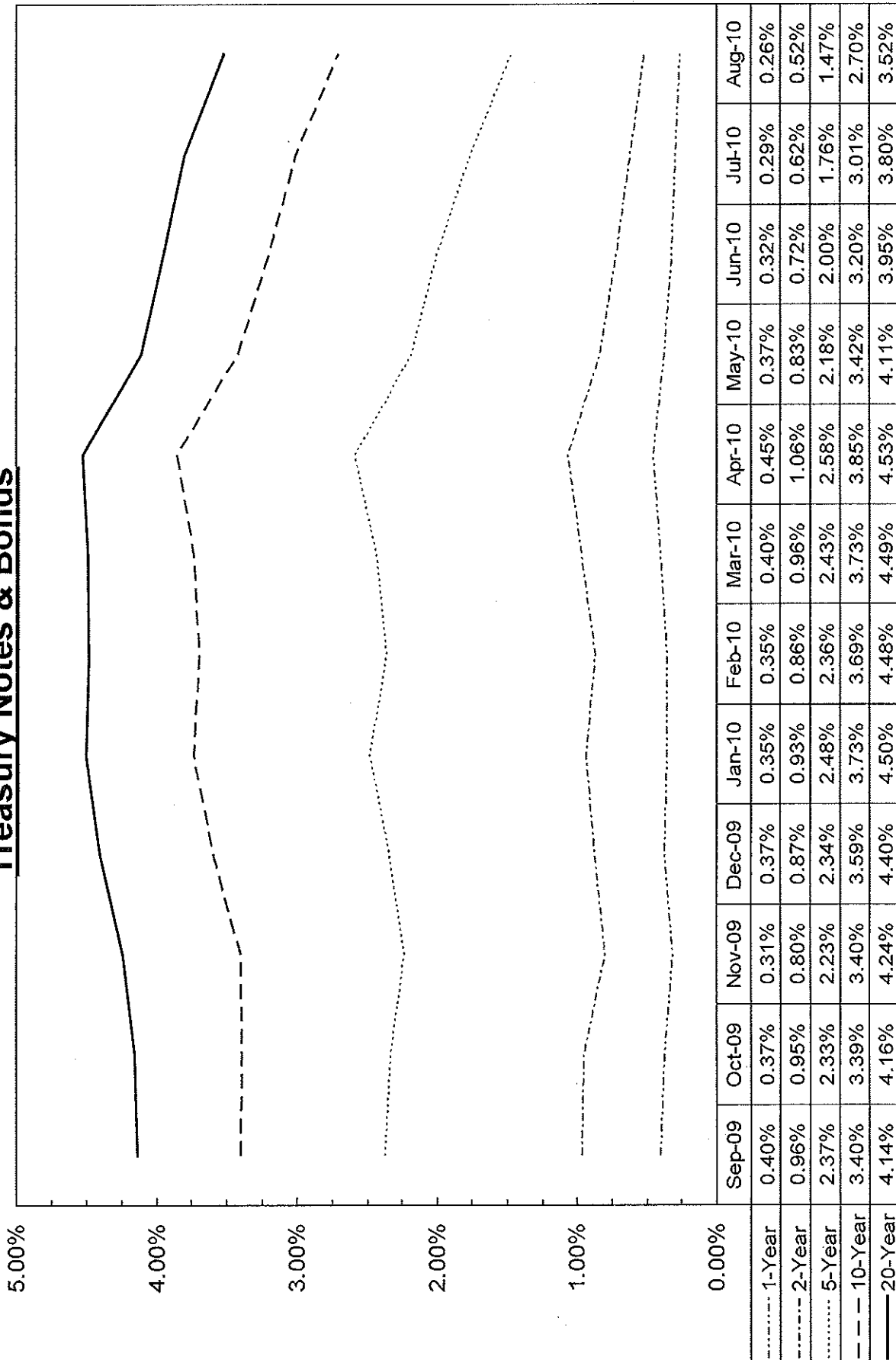
Value Line Betas

Electric Group

Dominion Resources, Inc.	0.70
Duke Energy Corp.	0.65
Entergy Corp.	0.70
FPL Group, Inc.	0.75
Progress Energy	0.60
SCANA Corp.	0.70
Southern Company	0.55
TECO Energy, Inc.	<u>0.85</u>
Average	<u><u>0.69</u></u>

Source of Information:
Value Line Investment Survey
June 25, 2010

Yields on Treasury Notes & Bonds



**Yields for Treasury Constant Maturities
Yearly for 2005-2009
and the Twelve Months Ended August 2010**

<u>Years</u>	<u>1-Year</u>	<u>2-Year</u>	<u>3-Year</u>	<u>5-Year</u>	<u>7-Year</u>	<u>10-Year</u>	<u>20-Year</u>
2005	3.62%	3.85%	3.93%	4.05%	4.15%	4.29%	4.64%
2006	4.93%	4.82%	4.77%	4.75%	4.76%	4.79%	4.99%
2007	4.52%	4.36%	4.34%	4.43%	4.50%	4.63%	4.91%
2008	1.82%	2.00%	2.24%	2.80%	3.17%	3.67%	4.36%
2009	0.47%	0.96%	1.43%	2.19%	2.81%	3.26%	4.11%
Five-Year Average	<u>3.07%</u>	<u>3.20%</u>	<u>3.34%</u>	<u>3.64%</u>	<u>3.88%</u>	<u>4.13%</u>	<u>4.60%</u>
<u>Months</u>							
Sep-09	0.40%	0.96%	1.48%	2.37%	3.02%	3.40%	4.14%
Oct-09	0.37%	0.95%	1.46%	2.33%	2.96%	3.39%	4.16%
Nov-09	0.31%	0.80%	1.32%	2.23%	2.92%	3.40%	4.24%
Dec-09	0.37%	0.87%	1.38%	2.34%	3.07%	3.59%	4.40%
Jan-10	0.35%	0.93%	1.49%	2.48%	3.21%	3.73%	4.50%
Feb-10	0.35%	0.86%	1.40%	2.36%	3.12%	3.69%	4.48%
Mar-10	0.40%	0.96%	1.51%	2.43%	3.16%	3.73%	4.49%
Apr-10	0.45%	1.06%	1.64%	2.58%	3.28%	3.85%	4.53%
May-10	0.37%	0.83%	1.32%	2.18%	2.86%	3.42%	4.11%
Jun-10	0.32%	0.72%	1.17%	2.00%	2.66%	3.20%	3.95%
Jul-10	0.29%	0.62%	0.98%	1.76%	2.43%	3.01%	3.80%
Aug-10	0.26%	0.52%	0.78%	1.47%	2.10%	2.70%	3.52%
Twelve-Month Average	<u>0.35%</u>	<u>0.84%</u>	<u>1.33%</u>	<u>2.21%</u>	<u>2.90%</u>	<u>3.43%</u>	<u>4.19%</u>
Six-Month Average	<u>0.35%</u>	<u>0.79%</u>	<u>1.23%</u>	<u>2.07%</u>	<u>2.75%</u>	<u>3.32%</u>	<u>4.07%</u>
Three-Month Average	<u>0.29%</u>	<u>0.62%</u>	<u>0.98%</u>	<u>1.74%</u>	<u>2.40%</u>	<u>2.97%</u>	<u>3.76%</u>

Source: Federal Reserve statistical release H.15

Measures of the Risk-Free Rate

The forecast of Treasury yields
per the consensus of nearly 50 economists
reported in the Blue Chip Financial Forecasts dated September 1, 2010

<u>Year</u>	<u>Quarter</u>	<u>1-Year Treasury Bill</u>	<u>2-Year Treasury Note</u>	<u>5-Year Treasury Note</u>	<u>10-Year Treasury Note</u>	<u>30-Year Treasury Bond</u>
2010	Third	0.3%	0.6%	1.6%	2.8%	3.8%
2010	Fourth	0.4%	0.7%	1.7%	2.9%	3.9%
2011	First	0.5%	0.9%	1.9%	3.1%	4.1%
2011	Second	0.7%	1.1%	2.2%	3.3%	4.3%
2011	Third	1.0%	1.5%	2.5%	3.5%	4.5%
2011	Fourth	1.5%	1.9%	2.8%	3.8%	4.7%

THE VALUE LINE

Investment Survey®

Part 1 Summary & Index

Exhibit PRM-1
Page 23 of 26
Schedule 10 [5 of 6]
File at the front of the
Ratings & Reports
binder. Last week's
Summary & Index
should be removed.

August 27, 2010

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SCREENS

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The Median of Estimated
PRICE-EARNINGS RATIOS
of all stocks with earnings

14.6

26 Weeks	Market Low	Market High
Ago	3-9-09	7-13-07
16.4	10.3	19.7

The Median of Estimated
DIVIDEND YIELDS
(next 12 months) of all dividend
paying stocks under review

2.2%

26 Weeks	Market Low	Market High
Ago	3-9-09	7-13-07
2.1%	4.0%	1.6%

The Estimated Median Price
APPRECIATION POTENTIAL
of all 1700 stocks in the hypothesized
economic environment 3 to 5 years hence

75%

26 Weeks	Market Low	Market High
Ago	3-9-09	7-13-07
65%	185%	35%

ANALYSES OF INDUSTRIES IN ALPHABETICAL ORDER WITH PAGE NUMBER

Numeral in parenthesis after the industry is rank for probable performance (next 12 months).

PAGE		PAGE		PAGE		PAGE	
Advertising (24)	2370	Electric Util. (Central) (50)	901	Machinery (35)	1701	Recreation (45)	2301
Aerospace/Defense (64)	701	*Electric Utility (East) (73)	146	Maritime (89)	271	Reinsurance (90)	2023
Air Transport (22)	245	Electric Utility (West) (55)	2237	Medical Services (38)	788	Restaurant (11)	288
Apparel (8)	2101	Electronics (14)	1320	*Medical Supplies (43)	167	Retail Automotive (20)	2119
*Auto & Truck (63)	101	Entertainment (67)	2319	Metal Fabricating (75)	728	Retail Building Supply (16)	1133
Auto Parts (6)	983	Entertainment Tech (42)	2005	Metals & Mining (Div.) (65)	1562	Retail (Special Lines) (26)	2165
Bank (66)	2501	Environmental (57)	347	Natural Gas Utility (82)	445	Retail Store (13)	2131
Bank (Canadian) (62)	1981	Financial Svcs. (Div.) (74)	2528	Natural Gas (Div.) (85)	426	Retail/Wholesale Food (52)	1942
Bank (Midwest) (72)	771	Food Processing (34)	1901	Newspaper (61)	2361	Securities Brokerage (54)	1796
Beverage (47)	1960	Foreign Electronics (10)	1973	Office Equip/Supplies (80)	1424	Semiconductor (9)	1347
Biotechnology (81)	823	Funeral Services (87)	1829	Oil/Gas Distribution (40)	519	Semiconductor Equip (3)	1385
Building Materials (98)	1101	Furn/Home Furnishings (41)	1141	Oilfield Svcs/Equip. (95)	2390	Shoe (2)	2153
Cable TV (7)	1019	Healthcare Information (27)	814	Packaging & Container (39)	1168	Steel (General) (83)	739
Canadian Energy (77)	415	Heavy Construction (88)	1229	Paper/Forest Products (59)	1157	Steel (Integrated) (92)	1784
Chemical (Basic) (32)	1573	Homebuilding (91)	1120	Petroleum (Integrated) (79)	397	Telecom. Equipment (19)	946
Chemical (Diversified) (23)	2417	Hotel/Gaming (70)	2333	Petroleum (Producing) (93)	2380	Telecom. Services (60)	922
Chemical (Specialty) (12)	458	Household Products (29)	1183	Pharmacy Services (86)	974	Telecom. Utility (36)	1037
Coal (68)	508	Human Resources (96)	1626	Power (97)	1212	Thrill (33)	1501
Computers/Peripherals (18)	1400	Industrial Services (76)	320	Precious Metals (5)	1552	Tobacco (78)	1988
Computer Software/Svcs (37)	2567	Information Services (28)	375	*Precision Instrument (4)	116	Toiletries/Cosmetics (30)	1010
Diversified Co. (53)	1752	Insurance (Life) (69)	1538	Property Management (15)	1030	Trucking (84)	261
Drug (25)	1585	Insurance (Prop/Cas.) (58)	749	Public/Private Equity (49)	2634	Water Utility (94)	1790
E-Commerce (31)	1812	Internet (48)	2612	Publishing (21)	2351	Wireless Networking (51)	487
Educational Services (17)	1995	Investment Co. (46)	1199	Railroad (1)	279		
Electrical Equipment (44)	1301	Investment Co.(Foreign) (56)	360	R.E.I.T. (71)	1512		

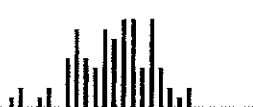
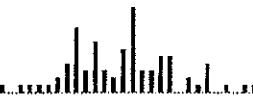
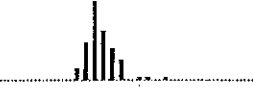
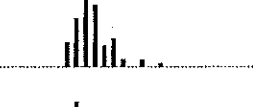
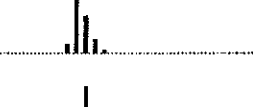

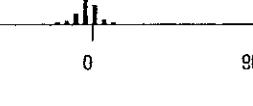
*Reviewed in this week's issue.

In three parts: This is Part 1, the Summary & Index. Part 2 is Selection & Opinion. Part 3 is Ratings & Reports. Volume LXVI, No. 1.

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Table 2-1: Basic Series: Summary Statistics of Annual Total Returns

Series	Geometric Mean (%)	Arithmetic Mean (%)	Standard Deviation (%)	Distribution (%)
Large Company Stocks	9.6	11.7	20.6	
Small Company Stocks*	11.7	16.4	33.0	
Long-Term Corporate Bonds	5.9	6.2	8.4	
Long-Term Government Bonds	5.7	6.1	9.4	
Intermediate-Term Government Bonds	5.4	5.6	5.7	
U.S. Treasury Bills	3.7	3.8	3.1	
Inflation	3.0	3.1	4.2	

Data from 1926–2008. * The 1933 Small Company Stocks Total Return was 142.9 percent.

Table 10-1: Building Blocks for Expected Return Construction

	Value (%)
Yields (Riskless Rates)¹	
Long-Term (20-year) U.S. Treasury Coupon Bond Yield	3.0
Intermediate-Term (5-year) U.S. Treasury Coupon Note Yield	1.3
Short-Term (30-day) U.S. Treasury Bill Yield	0.1
Fixed Income Risk Premia^{1, 2}	
Expected default premium: <i>long-term corporate bond total returns minus long-term government bond total returns</i>	0.1
Expected long-term horizon premium: <i>long-term government bond income returns minus U.S. Treasury bill total returns*</i>	1.4
Expected intermediate-term horizon premium: <i>intermediate-term government bond income returns minus U.S. Treasury bill total returns*</i>	1.0
Equity Risk Premia¹	
Long-horizon expected equity risk premium: <i>large company stock total returns minus long-term government bond income returns</i>	6.5
Intermediate-horizon expected equity risk premium: <i>large company stock total returns minus intermediate-term government bond income returns</i>	6.9
Short-horizon expected equity risk premium: <i>large company stock total returns minus U.S. Treasury bill total returns*</i>	7.9
Small Stock Premium: <i>small company stock total return minus large company stock total return</i>	4.8

1. As of December 31, 2008. Maturities are approximate. Expected risk premia for fixed income and equities are based on the differences of historical arithmetic mean returns from 1926–2008.

²We would prefer to use the 1970–2008 time range for calculating fixed income premia to reflect that bond volatility has increased over time. However, abnormal returns in 2008 make using a short time frame for forward-looking expectations unrealistic.

*For U.S. Treasury bills, the income return and total return are the same.

Comparable Earnings Approach

Using Non-Utility Companies with

Timeliness of 2, 3 & 4; Safety Rank of 1, 2 & 3; Financial Strength of B, B+, B++ & A;

Price Stability of 90 to 100; Betas of .55 to .85; and Technical Rank of 2, 3 & 4

Company	Industry	Timeliness Rank	Safety Rank	Financial Strength	Price Stability	Beta	Technical Rank
Alleghany Corp.	INSRPTY	2	2	A	90	0.80	3
Alliant Techsystems	DEFENSE	3	3	B+	95	0.80	3
Aon Corp.	FINSERV	4	2	A	95	0.65	3
Berkley (W.R.)	INSRPTY	3	3	B+	90	0.70	3
BMC Software	SOFTWARE	3	3	A	90	0.85	3
Bristol-Myers Squibb	DRUG	2	1	A	90	0.75	3
Brown & Brown	FINSERV	3	2	A	95	0.70	3
Campbell Soup	FOODPROC	2	2	B++	100	0.60	3
Capitol Fed. Fin'l	THRIFT	3	2	B++	95	0.65	3
Check Point Software	B2B	3	2	A	90	0.80	4
Chubb Corp.	INSRPTY	3	1	A	95	0.85	3
Church & Dwight	HOUSEPRD	2	1	A	100	0.60	4
Clorox Co.	HOUSEPRD	3	2	B++	100	0.60	3
Commerce Bancshs.	BANKMID	3	1	A	95	0.80	4
ConAgra Foods	FOODPROC	3	1	A	100	0.65	3
Cullen/Frost Bankers	BANK	3	1	A	95	0.85	3
CVS Caremark Corp.	DRUGSTOR	3	1	A	90	0.80	3
DaVita Inc.	MEDSERV	3	3	B+	95	0.65	3
Del Monte Foods	FOODPROC	3	3	B+	90	0.70	3
Dentsply Int'l	MEDSUPPL	4	2	B++	95	0.85	3
Dun & Bradstreet	INFOSER	3	3	B	100	0.70	3
Ecolab Inc.	CHEMSPEC	2	1	A	95	0.80	3
Erie Indemnity Co.	INSRPTY	2	2	B++	100	0.70	3
Gallagher (Arthur J.)	FINSERV	3	1	A	95	0.70	3
Haemonetics Corp.	MEDSUPPL	3	2	B++	95	0.60	3
Hanover Insurance	INSRPTY	4	2	B++	90	0.85	3
HCC Insurance Hldgs.	INSRPTY	4	3	B+	90	0.80	3
Henry (Jack) & Assoc.	SOFTWARE	2	2	B++	90	0.85	3
Hershey Co.	FOODPROC	2	2	B++	95	0.65	3
Hormel Foods	FOODPROC	2	1	A	100	0.65	3
Hudson City Bancorp	THRIFT	3	3	B+	90	0.80	3
Intl Flavors & Frag.	CHEMSPEC	2	2	B++	100	0.75	3
Investors Bancorp	THRIFT	2	3	B+	90	0.70	4
J&J Snack Foods	FOODPROC	3	2	B++	90	0.70	3
Kellogg	FOODPROC	3	1	A	100	0.55	3
Kroger Co.	GROCERY	4	2	B++	100	0.60	4
Laboratory Corp.	MEDSERV	2	1	A	100	0.65	3
Lincare Holdings	MEDSERV	3	1	A	90	0.65	3
Marsh & McLennan	FINSERV	3	3	B	95	0.75	3
McCormick & Co.	FOODPROC	2	1	A	100	0.55	3
Mercury General	INSRPTY	3	2	B++	95	0.70	3
Molson Coors Brewing	BEVERAGE	3	2	B++	90	0.60	2
Owens & Minor	MEDSUPPL	3	2	A	90	0.70	3
Paychex Inc.	SOFTWARE	4	1	A	95	0.85	3
People's United Fin'l	THRIFT	4	3	B+	95	0.60	3
Quest Diagnostics	MEDSERV	3	2	B++	95	0.70	3
Ralcorp Holdings	FOODPROC	4	3	B+	90	0.55	3
Reynolds American	TOBACCO	3	2	B+	100	0.60	4
RLI Corp.	INSRPTY	3	2	B++	95	0.80	3
Rollins Inc.	INDUSRV	2	2	A	90	0.80	3
Ruddick Corp.	GROCERY	2	3	B+	90	0.80	3
SAIC Inc.	INDUSRV	3	2	B++	100	0.60	3
Sara Lee Corp.	FOODPROC	3	2	B++	90	0.80	4
Schein (Henry)	MEDSUPPL	3	3	B+	95	0.75	3
Sensient Techn.	FOODPROC	3	3	B+	90	0.85	3
Sherwin-Williams	BUILDSUP	3	2	A	90	0.70	4
Silgan Holdings	PACKAGE	3	3	B+	90	0.80	3
Synopsis Inc.	SOFTWARE	3	2	B++	90	0.85	3
Teleflex Inc.	DIVERSIF	4	2	A	90	0.80	4
Travelers Cos.	INSRPTY	3	2	A	90	0.85	3
United Parcel Serv.	AIRTRANS	3	1	A	95	0.85	3
Waste Connections	ENVIRONM	2	3	B+	95	0.75	4
Waste Management	ENVIRONM	3	1	A	95	0.80	4
Watson Pharmac.	DRUG	2	2	B++	95	0.75	3
WD-40 Co.	HOUSEPRD	3	2	B++	90	0.75	4
Weis Markets	GROCERY	3	1	A	95	0.65	4
Wiley (John) & Sons	PUBLISH	2	3	B+	90	0.85	4
Average		3	2	B++	94	0.72	3
Electric Group	Average	3	2	B++	98	0.69	3

Source of Information: Value Line Investment Survey for Windows, September 2010

Comparable Earnings Approach
Five -Year Average Historical Earned Returns
for Years 2005-2009 and
Projected 3-5 Year Returns

Company	2005	2006	2007	2008	2009	Average	Projected 2013-15
Alleghany Corp.	NMF	9.6%	8.8%	4.4%	4.4%	6.8%	7.0%
Alliant Techsystems	24.5%	31.9%	30.5%	42.9%	34.5%	32.9%	13.0%
Aon Corp.	12.1%	12.2%	10.9%	11.7%	12.7%	11.9%	18.0%
Berkley (W.R.)	20.7%	20.8%	20.6%	16.5%	10.2%	17.8%	17.0%
BMC Software	16.5%	20.6%	31.5%	27.5%	27.1%	24.6%	18.5%
Bristol-Myers Squibb	26.8%	13.6%	20.5%	25.7%	21.9%	21.7%	17.5%
Brown & Brown	19.7%	18.5%	17.4%	13.4%	11.2%	16.0%	12.0%
Campbell Soup	55.7%	38.5%	59.5%	60.5%	105.9%	64.0%	33.0%
Capitol Fed. Fin'l	7.5%	5.6%	3.7%	5.8%	7.3%	6.0%	8.5%
Check Point Software	18.0%	16.2%	15.1%	16.1%	15.4%	16.2%	13.0%
Chubb Corp.	12.7%	17.1%	17.8%	14.9%	13.9%	15.3%	12.0%
Church & Dwight	17.6%	16.5%	15.6%	15.1%	15.5%	16.1%	15.0%
Clorox Co.	-	-	NMF	NMF	NMF	-	53.0%
Commerce Bancshs.	16.7%	15.2%	13.5%	12.0%	9.0%	13.3%	10.5%
ConAgra Foods	14.5%	12.8%	14.9%	9.7%	14.7%	13.3%	15.5%
Cullen/Frost Bankers	16.8%	14.1%	14.4%	11.8%	9.5%	13.3%	10.0%
CVS Caremark Corp.	14.1%	13.5%	8.4%	10.4%	10.6%	11.4%	11.0%
DaVita Inc.	24.4%	21.3%	19.7%	19.2%	19.8%	20.9%	16.5%
Del Monte Foods	10.4%	10.5%	10.0%	9.2%	13.2%	10.7%	14.0%
Dentsply Int'l	17.4%	17.7%	16.9%	18.0%	15.1%	17.0%	13.0%
Dun & Bradstreet	NMF	-	-	-	-	-	NMF
Ecolab Inc.	19.4%	21.9%	21.5%	29.5%	23.9%	23.2%	25.5%
Erie Indemnity Co.	18.1%	17.6%	20.6%	18.0%	12.0%	17.3%	21.0%
Gallagher (Arthur J.)	39.9%	15.9%	21.6%	15.1%	14.9%	21.5%	16.0%
Haemonetics Corp.	11.8%	10.5%	11.4%	11.9%	12.5%	11.6%	12.5%
Hanover Insurance	3.6%	9.7%	10.2%	9.7%	8.0%	8.2%	10.0%
HCC Insurance Hldgs.	11.4%	16.8%	15.6%	12.0%	11.7%	13.5%	12.0%
Henry (Jack) & Assoc.	14.6%	15.6%	17.5%	17.5%	16.5%	16.3%	16.0%
Hershey Co.	55.6%	81.8%	81.3%	NMF	69.3%	72.0%	31.5%
Hormel Foods	16.1%	15.9%	15.8%	14.2%	16.1%	15.6%	15.0%
Hudson City Bancorp	5.3%	5.9%	6.4%	9.0%	9.9%	7.3%	11.0%
Int'l Flavors & Frag.	20.1%	23.6%	38.3%	38.6%	28.9%	29.9%	20.0%
Investors Bancorp	-	1.7%	2.6%	1.9%	NMF	2.1%	7.5%
J&J Snack Foods	11.1%	11.2%	10.9%	8.8%	12.0%	10.8%	13.0%
Kellogg	42.9%	48.5%	43.7%	79.3%	53.3%	53.5%	38.5%
Kroger Co.	21.8%	22.6%	24.0%	24.1%	23.2%	23.1%	20.5%
Laboratory Corp.	20.5%	22.2%	29.4%	30.4%	25.3%	25.6%	19.0%
Lincare Holdings	18.8%	19.2%	30.8%	24.5%	15.1%	21.7%	19.0%
Marsh & McLennan	13.5%	14.1%	6.9%	NMF	9.2%	10.9%	19.5%
McCormick & Co.	27.8%	24.8%	23.5%	26.7%	23.3%	25.2%	18.5%
Mercury General	15.1%	11.8%	12.0%	7.7%	10.0%	11.3%	10.0%
Molson Coors Brewing	5.9%	6.4%	7.1%	8.6%	10.0%	7.6%	8.5%
Owens & Minor	13.0%	10.2%	11.8%	14.7%	14.3%	12.8%	13.0%
Paychex Inc.	26.6%	28.1%	26.4%	48.1%	39.8%	33.8%	34.0%
People's United Fin'l	9.7%	9.3%	3.4%	2.7%	2.0%	5.4%	5.0%
Quest Diagnostics	19.8%	21.2%	16.7%	17.8%	18.3%	18.8%	15.5%
Ralcorp Holdings	13.8%	15.4%	18.0%	4.7%	9.4%	12.3%	9.0%
Reynolds American	15.0%	16.1%	18.1%	22.5%	20.8%	18.5%	18.5%
RLI Corp.	14.0%	14.5%	21.5%	15.3%	12.2%	15.5%	9.0%
Rollins Inc.	29.8%	27.3%	27.7%	30.2%	30.2%	29.0%	33.0%
Ruddick Corp.	11.3%	10.8%	11.0%	11.7%	11.4%	11.2%	11.5%
SAIC Inc.	12.6%	24.0%	20.3%	21.4%	21.8%	20.0%	15.5%
Sara Lee Corp.	36.8%	29.2%	20.5%	21.1%	28.9%	27.3%	33.5%
Schein (Henry)	13.2%	12.4%	13.2%	14.0%	13.3%	13.2%	15.0%
Sensient Techn.	9.1%	9.4%	9.6%	11.1%	10.3%	9.9%	12.0%
Sherwin-Williams	26.8%	28.9%	34.5%	29.7%	29.2%	29.8%	27.5%
Silgan Holdings	34.6%	29.8%	25.3%	26.9%	23.2%	28.0%	16.5%
Synopsys Inc.	4.7%	6.7%	10.8%	13.1%	10.8%	9.2%	11.5%
Teleflex Inc.	13.1%	12.8%	11.5%	12.9%	8.6%	11.8%	10.5%
Travelers Cos.	9.2%	16.7%	16.9%	12.5%	13.2%	13.7%	10.0%
United Parcel Serv.	22.9%	27.1%	35.9%	52.8%	30.4%	33.8%	30.0%
Waste Connections	11.9%	11.0%	12.8%	8.2%	8.7%	10.5%	13.0%
Waste Management	14.3%	16.0%	18.6%	18.4%	15.7%	16.6%	20.0%
Watson Pharmac.	7.3%	6.7%	8.2%	11.3%	11.7%	9.0%	11.0%
WD-40 Co.	21.6%	18.2%	18.7%	17.4%	15.2%	18.2%	18.0%
Weis Markets	10.5%	8.9%	7.1%	7.1%	9.1%	8.5%	9.5%
Wiley (John) & Sons	23.9%	17.8%	18.7%	24.5%	20.9%	21.2%	19.0%
Average						18.7%	16.9%
Median						16.0%	15.0%

BEFORE
THE PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA

LOCKHART POWER COMPANY

Docket No. 2010-181-E

Appendices A through K
to Accompany the
Direct Testimony

of

Paul R. Moul, Managing Consultant
P. Moul & Associates

Concerning

Cost of Equity

APPENDIX A TO DIRECT TESTIMONY OF PAUL R. MOUL

1 EDUCATIONAL BACKGROUND, BUSINESS EXPERIENCE
2 AND QUALIFICATIONS

3 I was awarded a degree of Bachelor of Science in Business Administration by Drexel
4 University in 1971. While at Drexel, I participated in the Cooperative Education Program
5 which included employment, for one year, with American Water Works Service Company,
6 Inc., as an internal auditor, where I was involved in the audits of several operating water
7 companies of the American Water Works System and participated in the preparation of
8 annual reports to regulatory agencies and assisted in other general accounting matters.

9 Upon graduation from Drexel University, I was employed by American Water Works
10 Service Company, Inc., in the Eastern Regional Treasury Department where my duties
11 included preparation of rate case exhibits for submission to regulatory agencies, as well as
12 responsibility for various treasury functions of the thirteen New England operating
13 subsidiaries.

14 In 1973, I joined the Municipal Financial Services Department of Betz Environmental
15 Engineers, a consulting engineering firm, where I specialized in financial studies for
16 municipal water and wastewater systems.

17 In 1974, I joined Associated Utility Services, Inc., now known as AUS Consultants. I
18 held various positions with the Utility Services Group of AUS Consultants, concluding my
19 employment there as a Senior Vice President.

20 In 1994, I formed P. Moul & Associates, an independent financial and regulatory
21 consulting firm. In my capacity as Managing Consultant and for the past twenty-nine years, I
22 have continuously studied the rate of return requirements for cost of service regulated firms. In
23 this regard, I have supervised the preparation of rate of return studies which were employed in

APPENDIX A TO DIRECT TESTIMONY OF PAUL R. MOUL

1 connection with my testimony and in the past for other individuals. I have presented direct
2 testimony on the subject of fair rate of return, evaluated rate of return testimony of other
3 witnesses, and presented rebuttal testimony.

4 My studies and prepared direct testimony have been presented before thirty-six (36)
5 federal, state and municipal regulatory commissions, consisting of: the Federal Energy
6 Regulatory Commission; state public utility commissions in Alabama, Alaska, California,
7 Colorado, Connecticut, Delaware, Florida, Georgia, Hawaii, Illinois, Indiana, Iowa, Kentucky,
8 Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire,
9 New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, Rhode Island, South
10 Carolina, Tennessee, Texas, Virginia, West Virginia, Wisconsin, and the Philadelphia Gas
11 Commission. My testimony has been offered in over 200 rate cases involving electric power,
12 natural gas distribution and transmission, resource recovery, solid waste collection and disposal,
13 telephone, wastewater, and water service utility companies. While my testimony has involved
14 principally fair rate of return and financial matters, I have also testified on capital allocations,
15 capital recovery, cash working capital, income taxes, factoring of accounts receivable, and take-
16 or-pay expense recovery. My testimony has been offered on behalf of municipal and investor-
17 owned public utilities and for the staff of a regulatory commission. I have also testified at an
18 Executive Session of the State of New Jersey Commission of Investigation concerning the BPU
19 regulation of solid waste collection and disposal.

20 I was a co-author of a verified statement submitted to the Interstate Commerce
21 Commission concerning the 1983 Railroad Cost of Capital (Ex Parte No. 452). I was also co-
22 author of comments submitted to the Federal Energy Regulatory Commission regarding the
23 Generic Determination of Rate of Return on Common Equity for Public Utilities in 1985, 1986

APPENDIX A TO DIRECT TESTIMONY OF PAUL R. MOUL

1 and 1987 (Docket Nos. RM85-19-000, RM86-12-000, RM87-35-000 and RM88-25-000).
2 Further, I have been the consultant to the New York Chapter of the National Association of
3 Water Companies which represented the water utility group in the Proceeding on Motion of the
4 Commission to Consider Financial Regulatory Policies for New York Utilities (Case 91-M-
5 0509). I have also submitted comments to the Federal Energy Regulatory Commission in its
6 Notice of Proposed Rulemaking (Docket No. RM99-2-000) concerning Regional Transmission
7 Organizations and on behalf of the Edison Electric Institute in its intervention in the case of
8 Southern California Edison Company (Docket No. ER97-2355-000).

9 In late 1978, I arranged for the private placement of bonds on behalf of an investor-
10 owned public utility. I have assisted in the preparation of a report to the Delaware Public Service
11 Commission relative to the operations of the Lincoln and Ellendale Electric Company. I was
12 also engaged by the Delaware P.S.C. to review and report on the proposed financing and
13 disposition of certain assets of Sussex Shores Water Company (P.S.C. Docket Nos. 24-79 and
14 47-79). I was a co-author of a Report on Proposed Mandatory Solid Waste Collection Ordinance
15 prepared for the Board of County Commissioners of Collier County, Florida.

16 I have been a consultant to the Bucks County Water and Sewer Authority concerning
17 rates and charges for wholesale contract service with the City of Philadelphia. My municipal
18 consulting experience also included an assignment for Baltimore County, Maryland, regarding
19 the City/County Water Agreement for Metropolitan District customers (Circuit Court for
20 Baltimore County in Case 34/153/87-CSP-2636).

21 I am a member of the Society of Utility and Regulatory Financial Analysis (formerly the
22 National Society of Rate of Return Analysts) and have attended several Financial Forums
23 sponsored by the Society. I attended the first National Regulatory Conference at the Marshall-

APPENDIX A TO DIRECT TESTIMONY OF PAUL R. MOUL

Wythe School of Law, College of William and Mary. I also attended an Executive Seminar sponsored by the Colgate Darden Graduate Business School of the University of Virginia concerning Regulated Utility Cost of Equity and the Capital Asset Pricing Model. In October 1984, I attended a Standard & Poor's Seminar on the Approach to Municipal Utility Ratings, and in May 1985, I attended an S&P Seminar on Telecommunications Ratings.

My lecture and speaking engagements include:

Date	Occasion	Sponsor
April 2006	Thirty-eighth Financial Forum	Society of Utility & Regulatory Financial Analysts
April 2001	Thirty-third Financial Forum	Society of Utility & Regulatory Financial Analysts
December 2000	Pennsylvania Public Utility Law Conference: Non-traditional Players in the Water Industry	Pennsylvania Bar Institute
July 2000	EEI Member Workshop Developing Incentives Rates: Application and Problems	Edison Electric Institute
February 2000	The Sixth Annual FERC Briefing	Exnet and Bruder, Gentile & Marcoux, LLP
March 1994	Seventh Annual Proceeding	Electric Utility Business Environment Conf.
May 1993	Financial School	New England Gas Assoc.
April 1993	Twenty-Fifth Financial Forum	National Society of Rate of Return Analysts
June 1992	Rate and Charges Subcommittee Annual Conference	American Water Works Association
May 1992	Rates School	New England Gas Assoc.
October 1989	Seventeenth Annual Eastern Utility Rate Seminar	Water Committee of the National Association of Regulatory Utility Commissioners Florida Public Service Commission and University of Utah
October 1988	Sixteenth Annual Eastern Utility Rate Seminar	Water Committee of the National Association of Regulatory Utility

APPENDIX A TO DIRECT TESTIMONY OF PAUL R. MOUL

1			Commissioners, Florida
2			Public Service
3			Commission and University
4			of Utah
5	May 1988	Twentieth Financial	National Society of
6		Forum	Rate of Return Analysts
7	October 1987	Fifteenth Annual	Water Committee of the
8		Eastern Utility	National Association
9		Rate Seminar	of Regulatory Utility
10			Commissioners, Florida
11			Public Service Commis-
12			sion and University of
13			Utah
14	September 1987	Rate Committee	American Gas Association
15		Meeting	
16	May 1987	Pennsylvania	National Association of
17		Chapter	Water Companies
18		annual meeting	
19	October 1986	Eighteenth	National Society of Rate
20		Financial	of Return
21		Forum	
22	October 1984	Fifth National	American Bar Association
23		on Utility	
24		Ratemaking	
25		Fundamentals	
26	March 1984	Management Seminar	New York State Telephone
27			Association
28	February 1983	The Cost of Capital	Temple University, School
29		Seminar	of Business Admin.
30	May 1982	A Seminar on	New Mexico State
31		Regulation	University, Center for
32		and The Cost of	Business Research
33		Capital	and Services
34	October 1979	Economics of	Brown University
35		Regulation	

APPENDIX B TO DIRECT TESTIMONY OF PAUL R. MOUL

RATESETTING PRINCIPLES

Under traditional cost of service regulation, an agency engaged in ratesetting, such as the Commission, serves as a substitute for competition. In setting rates, a regulatory agency must carefully consider the public's interest in reasonably priced, as well as safe and reliable, service. The level of rates must also provide an opportunity to earn a rate of return for the public utility and its investors that is commensurate with the risk to which the invested capital is exposed so that the public utility has access to the capital required to meet its service responsibilities to its customers. Without an opportunity to earn a fair rate of return, a public utility will be unable to attract sufficient capital required to meet its responsibilities over time.

It is important to remember that regulated firms must compete for capital in a global market with non-regulated firms, as well as municipal, state and federal governments. Traditionally, a public utility has been responsible for providing a particular type of service to its customers within a specific market area. Although this relationship with its customers has been changing, it remains quite different from a non-regulated firm which is free to enter and exit competitive markets in accordance with available business opportunities.

As established by the landmark Bluefield and Hope cases,¹ several tests must be satisfied to demonstrate the fairness or reasonableness of the rate of return. These tests include a determination of whether the rate of return is (i) similar to that of other financially sound businesses having similar or comparable risks, (ii) sufficient to ensure confidence in the financial integrity of the public utility, and (iii) adequate to maintain and support the credit of the utility, thereby enabling it to attract, on a reasonable cost basis, the funds necessary to satisfy its capital

¹ Bluefield Water Works & Improvement Co. v. P.S.C. of West Virginia, 262 U.S. 679 (1923) and F.P.C. v. Hope Natural Gas Co., 320 U.S. 591 (1944).

APPENDIX B TO DIRECT TESTIMONY OF PAUL R. MOUL

1 requirements so that it can meet the obligation to provide adequate and reliable service to the
2 public.

3 A fair rate of return must not only provide the utility with the ability to attract new
4 capital, it must also be fair to existing investors. An appropriate rate of return which may have
5 been reasonable at one point in time may become too high or too low at a subsequent point in
6 time, based upon changing business risks, economic conditions and alternative investment
7 opportunities. When applying the standards of a fair rate of return, it must be recognized that the
8 end result must provide for the payment of interest on the company's debt, the payment of
9 dividends on the company's stock, the recovery of costs associated with securing capital, the
10 maintenance of reasonable credit quality for the company, and support of the company's financial
11 condition, which today would include those measures of financial performance in the areas of
12 interest coverage and adequate cash flow derived from a reasonable level of earnings.

EVALUATION OF RISK

The rate of return required by investors is directly linked to the perceived level of risk. The greater the risk of an investment, the higher is the required rate of return necessary to compensate for that risk all else being equal. Because investors will seek the highest rate of return available, considering the risk involved, the rate of return must at least equal the investor-required, market-determined cost of capital if public utilities are to attract the necessary investment capital on reasonable terms.

In the measurement of the cost of capital, it is necessary to assess the risk of a firm. The level of risk for a firm is often defined as the uncertainty of achieving expected performance, and is sometimes viewed as a probability distribution of possible outcomes. Hence, if the uncertainty of achieving an expected outcome is high, the risk is also high. As a consequence, high risk firms must offer investors higher returns than low risk firms which pay less to attract capital from investors. This is because the level of uncertainty, or risk of not realizing expected returns, establishes the compensation required by investors in the capital markets. Of course, the risk of a firm must also be considered in the context of its ability to actually experience adequate earnings which conform with a fair rate of return. Thus, if there is a high probability that a firm will not perform well due to fundamentally poor market conditions, investors will demand a higher return.

The investment risk of a firm is comprised of its business risk and financial risk. Business risk is all risk other than financial risk, and is sometimes defined as the staying power of the market demand for a firm's product or service and the resulting inherent uncertainty of realizing expected pre-tax returns on the firm's assets. Business risk encompasses all operating factors, e.g., productivity, competition, management ability, etc. that bear upon the expected pre-

APPENDIX C TO DIRECT TESTIMONY OF PAUL R. MOUL

1 tax operating income attributed to the fundamental nature of a firm's business. Financial risk
2 results from a firm's use of borrowed funds (or similar sources of capital with fixed payments) in
3 its capital structure, i.e., financial leverage. Thus, if a firm did not employ financial leverage by
4 borrowing any capital, its investment risk would be represented by its business risk.

5 It is important to note that in evaluating the risk of regulated companies, financial
6 leverage cannot be considered in the same context as it is for non-regulated companies.
7 Financial leverage has a different meaning for regulated firms than for non-regulated companies.
8 For regulated public utilities, the cost of service formula gives the benefits of financial leverage
9 to consumers in the form of lower revenue requirements. For non-regulated companies, all
10 benefits of financial leverage are retained by the common stockholder. Although retaining none
11 of the benefits, regulated firms bear the risk of financial leverage. Therefore, a regulated firm's
12 rate of return on common equity must recognize the greater financial risk shown by the higher
13 leverage typically employed by public utilities.

14 Although no single index or group of indices can precisely quantify the relative
15 investment risk of a firm, financial analysts use a variety of indicators to assess that risk. For
16 example, the creditworthiness of a firm is revealed by its bond ratings. If the stock is traded, the
17 price-earnings multiple, dividend yield, and beta coefficients (a statistical measure of a stock's
18 relative volatility to the rest of the market) provide some gauge of overall risk. Other indicators,
19 which are reflective of business risk, include the variability of the rate of return on equity, which
20 is indicative of the uncertainty of actually achieving the expected earnings; operating ratios (the
21 percentage of revenues consumed by operating expenses, depreciation, and taxes other than
22 income tax), which are indicative of profitability; the quality of earnings, which considers the
23 degree to which earnings are the product of accounting principles or cost deferrals; and the level

APPENDIX C TO DIRECT TESTIMONY OF PAUL R. MOUL

1 of internally generated funds. Similarly, the proportion of senior capital in a company's
2 capitalization is the measure of financial risk which is often analyzed in the context of the equity
3 ratio (i.e., the complement of the debt ratio).

APPENDIX D TO DIRECT TESTIMONY OF PAUL R. MOUL

COST OF EQUITY--GENERAL APPROACH

Through a fundamental financial analysis, the relative risk of a firm must be established prior to the determination of its cost of equity. Any rate of return recommendation which lacks such a basis will inevitably fail to provide a utility with a fair rate of return except by coincidence. With a fundamental risk analysis as a foundation, standard financial models can be employed by using informed judgment. The methods which have been employed to measure the cost of equity include: the Discounted Cash Flow ("DCF") model, the Risk Premium ("RP") approach, the Capital Asset Pricing Model ("CAPM") and the Comparable Earnings ("CE") approach.

The traditional DCF model, while useful in providing some insight into the cost of equity, is not an approach that should be used exclusively. The divergence of stock prices from company-specific fundamentals can provide a misleading cost of equity calculation. As reported in The Wall Street Journal on June 6, 1991, a statistical study published by Goldman Sachs indicated that only 35% of stock price growth in the 1980's could be attributed to earnings and interest rates. Further, 38% of the rise in stock prices during the 1980's was attributed to unknown factors. The Goldman Sachs study highlights the serious limitations of a model, such as DCF, which is founded upon identification of specific variables to explain stock price growth. That is to say, when stock price growth exceeds growth in a company's earnings per share, models such as DCF will misspecify investor expected returns which are comprised of capital gains, as well as dividend receipts. As such, a combination of methods should be used to measure the cost of equity.

APPENDIX D TO DIRECT TESTIMONY OF PAUL R. MOUL

1 The Risk Premium analysis is founded upon the prospective cost of long-term debt, i.e.,
2 the yield that the public utility must offer to raise long-term debt capital directly from investors.
3 To that yield must be added a risk premium in recognition of the greater risk of common equity
4 over debt. This additional risk is, of course, attributable to the fact that the payment of interest
5 and principal to creditors has priority over the payment of dividends and return of capital to
6 equity investors. Hence, equity investors require a higher rate of return than the yield on long-
7 term corporate bonds.

8 The CAPM is a model not unlike the traditional Risk Premium. The CAPM employs the
9 yield on a risk-free interest-bearing obligation plus a premium as compensation for risk. Aside
10 from the reliance on the risk-free rate of return, the CAPM gives specific quantification to
11 systematic (or market) risk as measured by beta.

12 The Comparable Earnings approach measures the returns expected/experienced by other
13 non-regulated firms and has been used extensively in rate of return analysis for over a half
14 century. However, its popularity diminished in the 1970s and 1980s with the popularization of
15 market-based models. Recently, there has been renewed interest in this approach. Indeed, the
16 financial community has expressed the view that the regulatory process must consider the returns
17 which are being achieved in the non-regulated sector so that public utilities can compete
18 effectively in the capital markets. Indeed, with additional competition being introduced
19 throughout the traditionally regulated public utility industry, returns expected to be realized by
20 non-regulated firms have become increasingly relevant in the ratesetting process. The Comparable
21 Earnings approach considers directly those requirements and it fits the established standards for a

APPENDIX D TO DIRECT TESTIMONY OF PAUL R. MOUL

- 1 fair rate of return set forth in the Bluefield decision. The Bluefield decisions require that a fair
- 2 return for a utility must be equal to that earned by firms of comparable risk.

APPENDIX E TO DIRECT TESTIMONY OF PAUL R. MOUL

DISCOUNTED CASH FLOW ANALYSIS

Discounted Cash Flow ("DCF") theory seeks to explain the value of an economic or financial asset as the present value of future expected cash flows discounted at the appropriate risk-adjusted rate of return. Thus, if \$100 is to be received in a single payment 10 years subsequent to the acquisition of an asset, and the appropriate risk-related interest rate is 8%, the present value of the asset would be \$46.32 ($\text{Value} = \$100 \div (1.08)^{10}$) arising from the discounted future cash flow. Conversely, knowing the present \$46.32 price of an asset (where price = value), the \$100 future expected cash flow to be received 10 years hence shows an 8% annual rate of return implicit in the price and future cash flows expected to be received.

In its simplest form, the DCF theory considers the number of years from which the cash flow will be derived and the annual compound interest rate which reflects the risk or uncertainty associated with the cash flows. It is appropriate to reiterate that the dollar values to be discounted are future cash flows.

DCF theory is flexible and can be used to estimate value (or price) or the annual required rate of return under a wide variety of conditions. The theory underlying the DCF methodology can be easily illustrated by utilizing the investment horizon associated with a preferred stock not having an annual sinking fund provision. In this case, the investment horizon is infinite, which reflects the perpetuity of a preferred stock. If P represents price, K_p is the required rate of return on a preferred stock, and D is the annual dividend (P and D with time subscripts), the value of a preferred share is equal to the present value of the dividends to be received in the future discounted at the appropriate risk-adjusted interest rate, K_p . In this circumstance:

APPENDIX E TO DIRECT TESTIMONY OF PAUL R. MOUL

1
$$P_0 = \frac{D_1}{(1 + K_p)} + \frac{D_2}{(1 + K_p)^2} + \frac{D_3}{(1 + K_p)^3} + \dots + \frac{D_n}{(1 + K_p)^n}$$

2 If $D_1 = D_2 = D_3 = \dots D_n$ as is the case for preferred stock, and n approaches infinity, as is the
3 case for non-callable preferred stock without a sinking fund, then this equation reduces to:

4
$$P_0 = \frac{D_1}{K_p}$$

5 This equation can be used to solve for the annual rate of return on a preferred stock when the
6 current price and subsequent annual dividends are known. For example, with $D_1 = \$1.00$, and P_0
7 $= \$10$, then $K_p = \$1.00 \div \10 , or 10%.

8 The dividend discount equation, first shown, is the generic DCF valuation model for all
9 equities, both preferred and common. While preferred stock generally pays a constant dividend,
10 permitting the simplification subsequently noted, common stock dividends are not constant.
11 Therefore, absent some other simplifying condition, it is necessary to rely upon the generic form
12 of the DCF. If, however, it is assumed that $D_1, D_2, D_3, \dots D_n$ are systematically related to one
13 another by a constant growth rate (g), so that $D_0(1 + g) = D_1, D_1(1 + g) = D_2, D_2(1 + g) = D_3$
14 and so on approaching infinity, and if K_s (the required rate of return on a common stock) is
15 greater than g , then the DCF equation can be reduced to:

$$P_0 = \frac{D_1}{K_s - g} \text{ or } P_0 = \frac{D_0(1 + g)}{K_s - g}$$

APPENDIX E TO DIRECT TESTIMONY OF PAUL R. MOUL

1 which is the periodic form of the "Gordon" model.¹ Proof of the DCF equation is found in all
2 modern basic finance textbooks. This DCF equation can be easily solved as:

$$K_S = \frac{D_0(1+g)}{P_0} + g$$

3 which is the periodic form of the Gordon Model commonly applied in estimating equity rates of
4 return in rate cases. When used for this purpose, K_S is the annual rate of return on common
5 equity demanded by investors to induce them to hold a firm's common stock. Therefore, the
6 variables D_0 , P_0 and g must be estimated in the context of the market for equities, so that the rate
7 of return, which a public utility is permitted the opportunity to earn, has meaning and reflects the
8 investor-required cost rate.

9 Application of the Gordon model with market derived variables is straightforward. For
10 example, using the most recent prior annualized dividend (D_0) of \$0.80, the current price (P_0) of
11 \$10.00, and the investor expected dividend growth rate (g) of 5%, the solution of the DCF
12 formula provides a 13.4% rate of return. The dividend yield component in this instance is 8.4%,
13 and the capital gain component is 5%, which together represent the total 13.4% annual rate of
14 return required by investors. The capital gain component of the total return may be calculated
15 with two adjacent future year prices. For example, in the eleventh year of the holding period, the
16 price per share would be \$17.10 as compared with the price per share of \$16.29 in the tenth year
17 which demonstrates the 5% annual capital gain yield.

¹ Although the popular application of the DCF model is often attributed to the work of Myron J. Gordon in the mid-1950's, J. B. Williams explicated the DCF model in its present form nearly two decades earlier.

APPENDIX E TO DIRECT TESTIMONY OF PAUL R. MOUL

1 Some DCF devotees believe that it is more appropriate to estimate the required return on
2 equity with a model which permits the use of multiple growth rates. This may be a plausible
3 approach to DCF, where investors expect different dividend growth rates in the near term and
4 long run. If two growth rates, one near term and one long-run, are to be used in the context of a
5 price (P_0) of \$10.00, a dividend (D_0) of \$0.80, a near-term growth rate of 5.5%, and a long-run
6 expected growth rate of 5.0% beginning at year 6, the required rate of return is 13.57% solved
7 with a computer by iteration.

Dividend Yield

8
9 The historical annual dividend yield for the Electric Group is shown on Schedule 2. The
10 2005-2009 five-year average dividend yield was 4.4% for the Electric Group. The monthly
11 dividend yields for the past twelve months are shown graphically on Schedule 4. These dividend
12 yields reflect an adjustment to the month-end closing prices to remove the pro rata accumulation
13 of the quarterly dividend amount since the last ex-dividend date.

14 The ex-dividend date usually occurs two business days before the record date of the
15 dividend (i.e., the date by which a shareholder must own the shares to be entitled to the dividend
16 payment--usually about two to three weeks prior to the actual payment). During a quarter (here
17 defined as 91 days), the price of a stock moves up ratably by the dividend amount as the ex-
18 dividend date approaches. The stock's price then falls by the amount of the dividend on the ex-
19 dividend date. Therefore, it is necessary to calculate the fraction of the quarterly dividend since
20 the time of the last ex-dividend date and to remove that amount from the price. This adjustment
21 reflects normal recurring pricing of stocks in the market, and establishes a price which will
22 reflect the true yield on a stock.

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1 A six-month average dividend yield has been used to recognize the prospective
2 orientation of the ratesetting process as explained in the direct testimony. For the purpose of a
3 DCF calculation, the average dividend yields must be adjusted to reflect the prospective nature
4 of the dividend payments, i.e., the higher expected dividends for the future rather than the recent
5 dividend payment annualized. An adjustment to the dividend yield component, when computed
6 with annualized dividends, is required based upon investor expectation of quarterly dividend
7 increases.

8 The procedure to adjust the average dividend yield for the expectation of a dividend
9 increase during the initial investment period will be at a rate of one-half the growth component,
10 developed below. The DCF equation, showing the quarterly dividend payments as D_0 , may be
11 stated in this fashion:

$$K = \frac{D_0(1+g)^0 + D_0(1+g)^0 + D_0(1+g)^1 + D_0(1+g)^1}{P_0} + g$$

12 The adjustment factor, based upon one-half the expected growth rate developed in my direct
13 testimony, will be 2.500% (5.00% x .5) for the Electric Group, which assumes that two dividend
14 payments will be at the expected higher rate during the initial investment period. Using the six-
15 month average dividend yield as a base, the prospective (forward) dividend yield would be
16 5.17% (5.04% x 1.02500) for the Electric Group.

17 Another DCF model that reflects the discrete growth in the quarterly dividend (D_0) is as
18 follows:

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$$K = \frac{D_0(1+g)^{25} + D_0(1+g)^{50} + D_0(1+g)^{75} + D_0(1+g)^{100}}{P_0} + g$$

1 This procedure confirms the reasonableness of the forward dividend yield previously calculated.
2 The quarterly discrete adjustment provides a dividend yield of 5.20% (5.04% x 1.03106) for the
3 Electric Group. The use of an adjustment is required for the periodic form of the DCF in order to
4 properly recognize that dividends grow on a discrete basis.

5 In either of the preceding DCF dividend yield adjustments, there is no recognition for the
6 compound returns attributed to the quarterly dividend payments. Investors have the opportunity
7 to reinvest quarterly dividend receipts. Recognizing the compounding of the periodic quarterly
8 dividend payments (D_0), results in a third DCF formulation:

$$k = \left[\left(1 + \frac{D_0}{P_0} \right)^4 - 1 \right] + g$$

9 This DCF equation provides no further recognition of growth in the quarterly dividend.
10 Combining discrete quarterly dividend growth with quarterly compounding would provide the

$$k = \left[\left(1 + \frac{D_0(1+g)^{25}}{P_0} \right)^4 - 1 \right] + g$$

11 following DCF formulation, stating the quarterly dividend payments (D_0):

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1 A compounding of the quarterly dividend yield provides another procedure to recognize the
2 necessity for an adjusted dividend yield. The unadjusted average quarterly dividend yield was
3 1.2600% ($5.04\% \div 4$) for the Electric Group. The compound dividend yield would be 5.20%
4 $(1.012755^4 - 1)$ for the Electric Group, recognizing quarterly dividend payments in a forward-
5 looking manner. These dividend yields conform with investors' expectations in the context of
6 reinvestment of their cash dividend.

7 For the Electric Group, a 5.19% forward-looking dividend yield is the average $(5.17\% +$
8 $5.20\% + 5.20\% = 15.57\% \div 3)$ of the adjusted dividend yield using the form $D_0/P_0 (1+.5g)$, the
9 dividend yield recognizing discrete quarterly growth, and the quarterly compound dividend yield
10 with discrete quarterly growth.

11 Growth Rate

12 If viewed in its infinite form, the DCF model is represented by the discounted value of an
13 endless stream of growing dividends. It would, however, require 100 years of future dividend
14 payments so that the discounted value of those payments would equate to the present price so
15 that the discount rate and the rate of return shown by the simplified Gordon form of the DCF
16 model would be about the same. A century of dividend receipts represents an unrealistic
17 investment horizon from almost any perspective. Because stocks are not held by investors
18 forever, the growth in the share value (i.e., capital appreciation, or capital gains yield) is most
19 relevant to investors' total return expectations. Hence, investor expected returns in the equity
20 market are provided by capital appreciation of the investment as well as receipt of dividends. As
21 such, the sale price of a stock can be viewed as a liquidating dividend which can be discounted

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1 along with the annual dividend receipts during the investment holding period to arrive at the
2 investor expected return.

3 In its constant growth form, the DCF assumes that with a constant return on book
4 common equity and constant dividend payout ratio, a firm's earnings per share, dividends per
5 share and book value per share will grow at the same constant rate, absent any external financing
6 by a firm. Because these constant growth assumptions do not actually prevail in the capital
7 markets, the capital appreciation potential of an equity investment is best measured by the
8 expected growth in earnings per share. Since the traditional form of the DCF assumes no change
9 in the price-earnings multiple, the value of a firm's equity will grow at the same rate as earnings
10 per share. Hence, the capital gains yield is best measured by earnings per share growth using
11 company-specific variables.

12 Investors consider both historical and projected data in the context of the expected
13 growth rate for a firm. An investor can compute historical growth rates using compound growth
14 rates or growth rate trend lines. Otherwise, an investor can rely upon published growth rates as
15 provided in widely-circulated, influential publications. However, a traditional constant growth
16 DCF analysis that is limited to such inputs suffers from the assumption of no change in the price-
17 earnings multiple, i.e., that the value of a firm's equity will grow at the same rate as earnings.
18 Some of the factors which actually contribute to investors' expectations of earnings growth and
19 which should be considered in assessing those expectations, are: (i) the earnings rate on existing
20 equity, (ii) the portion of earnings not paid out in dividends, (iii) sales of additional common
21 equity, (iv) reacquisition of common stock previously issued, (v) changes in financial leverage,
22 (vi) acquisitions of new business opportunities, (vii) profitable liquidation of assets, and (viii)

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1 repositioning of existing assets. The realities of the equity market regarding total return
2 expectations, however, also reflect factors other than these inputs. Therefore, the DCF model
3 contains overly restrictive limitations when the growth component is stated in terms of earnings
4 per share (the basis for the capital gains yield) or dividends per share (the basis for the infinite
5 dividend discount model). In these situations, there is inadequate recognition of the capital gains
6 yields arising from stock price growth which could exceed earnings or dividends growth.

7 To assess the growth component of the DCF, analysts' projections of future growth
8 influence investor expectations as explained above. One influential publication is The Value
9 Line Investment Survey which contains estimated future projections of growth. The Value Line
10 Investment Survey provides growth estimates which are stated within a common economic
11 environment for the purpose of measuring relative growth potential. The basis for these
12 projections is the Value Line 3 to 5 year hypothetical economy. The Value Line hypothetical
13 economic environment is represented by components and subcomponents of the National Income
14 Accounts which reflect in the aggregate assumptions concerning the unemployment rate,
15 manpower productivity, price inflation, corporate income tax rate, high-grade corporate bond
16 interest rates, and Fed policies. Individual estimates begin with the correlation of sales, earnings
17 and dividends of a company to appropriate components or subcomponents of the future National
18 Income Accounts. These calculations provide a consistent basis for the published forecasts.
19 Value Line's evaluation of a specific company's future prospects are considered in the context of
20 specific operating characteristics that influence the published projections. Of particular
21 importance for regulated firms, Value Line considers the regulatory quality, rates of return
22 recently authorized, the historic ability of the firm to actually experience the authorized rates of

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1 return, the firm's budgeted capital spending, the firm's financing forecast, and the dividend
2 payout ratio. The wide circulation of this source and frequent reference to Value Line in
3 financial circles indicate that this publication has an influence on investor judgment with regard
4 to expectations for the future.

5 There are other sources of earnings growth forecasts. One of these sources is
6 Morningstar, which is a leading provider of independent investment research. Morningstar
7 provides data on approximately 360,000 investment offerings and is the publisher of the Ibbotson
8 Yearbook. Another source is the Institutional Brokers Estimate System ("IBES"). The IBES
9 service provides data on consensus earnings per share forecasts and five-year earnings growth
10 rate estimates. The publisher of IBES has been purchased by Thomson/First Call. The IBES
11 forecasts have been integrated into the First Call consensus growth forecasts. The earnings
12 estimates are obtained from financial analysts at brokerage research departments and from
13 institutions whose securities analysts are projecting earnings for companies in the First Call
14 universe of companies. Other services that tabulate earnings forecasts and publish them are
15 Zacks Investment Research. As with the IBES/First Call forecasts, Zacks provide consensus
16 forecasts collected from analysts for most publically traded companies.

17 In each of these publications, forecasts of earnings per share for the current and
18 subsequent year receive prominent coverage. That is to say, IBES/First Call, Zacks,
19 Morningstar, and Value Line show estimates of current-year earnings and projections for the
20 next year. While the DCF model typically focusses upon long-run estimates of growth, stock
21 prices are clearly influenced by current and near-term earnings prospects. Therefore, the near-
22 term earnings per share growth rates should also be factored into a growth rate determination.

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1 Although forecasts of future performance are investor influencing², equity investors may
2 also rely upon the observations of past performance. Investors' expectations of future growth
3 rates may be determined, in part, by an analysis of historical growth rates. It is apparent that any
4 serious investor would advise himself/herself of historical performance prior to taking an
5 investment position in a firm. Earnings per share and dividends per share represent the principal
6 financial variables which influence investor growth expectations.

7 Other financial variables are sometimes considered in rate case proceedings. For
8 example, a company's internal growth rate, derived from the return rate on book common equity
9 and the related retention ratio, is sometimes considered. This growth rate measure is represented
10 by the Value Line forecast "BxR" shown on Schedule 6 Internal growth rates are often used as a
11 proxy for book value growth. Unfortunately, this measure of growth is often not reflective of
12 investor-expected growth. This is especially important when there is an indication of a
13 prospective change in dividend payout ratio, earned return on book common equity, change in
14 market-to-book ratios or other fundamental changes in the character of the business.
15 Nevertheless, I have also shown the historical and projected growth rates in book value per share
16 and internal growth rates.

² As shown in a National Bureau of Economic Research monograph by John G. Cragg and Burton G. Malkiel, Expectations and the Structure of Share Prices, University of Chicago Press 1982.

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FLOTATION COST ADJUSTMENT

The rate of return on common equity must be high enough to avoid dilution when additional common equity is issued. In this regard, the rate of return on book common equity for public utilities requires recognition of specific factors other than just the market-determined cost of equity. A market price of common stock above book value is necessary to attract future capital on reasonable terms in competition with other seekers of equity capital. Non-regulated companies traditionally have experienced common stock prices consistently above book value. For a public utility to be competitive in the capital markets, similar recognition should be provided, given the understated value of net plant investment which is represented by historical costs much lower than current cost. Moreover, the market value of a public utility stock must be above book value to provide recognition of market pressure, issuance and selling expenses which reduce the net proceeds realized from the sale of new shares of common stock. A market price of stock above book value will maintain the financial integrity of shares previously issued and is necessary to avoid dilution when new shares are offered.

The rate of return on common equity should provide for the underwriting discount and company issuance expenses associated with the sale of new common stock. It is the net proceeds, after payment of these costs that are available to the company, because the issuance costs are paid from the initial offering price to the public. Market pressure occurs when the news of an impending issue of new common shares impacts the pre-offering price of stock. The stock price often declines because of the prospect of an increase in the supply of shares. The difficulty encountered in measuring market pressure relates to the time frame considered, general market conditions, and management action during the offering period. An indication of negative market

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1 pressure could be the product of the techniques employed to measure pressure and not the
2 prospect of an additional supply of shares related to the new issue.

3 Even in the situation where a company will not issue common stock during the near term,
4 the flotation cost adjustment factor should be applied to the common equity cost rate. A public
5 utility must be in a competitive capital attraction posture at all times. To deny recognition of a
6 market value of equity above book value would be discriminatory when other comparable
7 companies receive an allowance in this regard. Moreover, to reduce the return rate on common
8 equity by failing to recognize this factor would likewise result in a company being less
9 competitive in the bond market, because a lower resulting overall rate of return would provide
10 less competitive fixed-charge coverage. It cannot be said that a public utility's stock price
11 already considers an allowance for flotation costs. This is because investors in either fixed-
12 income bonds or common stocks seek their required rate of return by reference to alternative
13 investment opportunities, and are not concerned with the issuance costs incurred by a firm
14 borrowing long-term debt or issuing common equity.

15 Historical data concerning issuance and selling expenses (excluding market pressure) is
16 shown on Schedule 7. To adjust for the cost of raising new common equity capital, the rate of
17 return on common equity should recognize an appropriate multiple in order to allow for a market
18 price of stock above book value. This would provide recognition for flotation costs, which are
19 shown to be 3.2% for public offerings of common stocks by electric companies from 2004 to
20 2008. Because these costs are not recovered elsewhere, they must be recognized in the rate of
21 return. Since I apply the flotation cost to the entire cost of equity, I have only used a
22 modification factor of 1.02 which is applied to the unadjusted DCF-measure of the cost of equity

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- 1 to cover issuance expense. If the modification factor were applied to only a portion of the cost of
- 2 equity, such as just the dividend yield, then a higher factor would be necessary.

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INTEREST RATES

Interest rates can be viewed in their traditional nominal terms (i.e., the stated rate of interest) and in real terms (i.e., the stated rate of interest less the expected rate of inflation). Absent consideration of inflation, the real rate of interest is determined generally by supply factors which are influenced by investors willingness to forego current consumption (i.e., to save) and demand factors that are influenced by the opportunities to derive income from productive investments. Added to the real rate of interest is compensation required by investors for the inflationary impact of the declining purchasing power of their income received in the future. While interest rates are clearly influenced by the changing annual rate of inflation, it is important to note that the expected rate of inflation that is reflected in current interest rates may be quite different than the prevailing rate of inflation.

Rates of interest also vary by the type of interest bearing instrument. Investors require compensation for the risk associated with the term of the investment and the risk of default. The risk associated with the term of the investment is usually shown by the yield curve, i.e., the difference in rates across maturities. The typical structure is represented by a positive yield curve which provides progressively higher interest rates as the maturities are lengthened. Flat (i.e., relatively level rates across maturities) or inverted (i.e., higher short-term rates than long-term rates) yield curves occur less frequently.

The risk of default is typically associated with the creditworthiness of the borrower. Differences in interest rates can be traced to the credit quality ratings assigned by the bond rating agencies, such as Moody's Investors Service, Inc. and Standard & Poor's Corporation. Obligations of the United States Treasury are usually considered to be free of default risk, and hence reflect only the real rate of interest, compensation for expected inflation, and maturity risk.

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1 The Treasury has been issuing inflation-indexed notes which automatically provide
2 compensation to investors for future inflation, thereby providing a lower current yield on these
3 issues.

4 Interest Rate Environment

5 Federal Reserve Board ("Fed") policy actions which impact directly short-term interest
6 rates also substantially affect investor sentiment in long-term fixed-income securities markets. In
7 this regard, the Fed has often pursued policies designed to build investor confidence in the fixed-
8 income securities market. Formative Fed policy has had a long history, as exemplified by the
9 historic 1951 Treasury-Federal Reserve Accord, and more recently, deregulation within the
10 financial system which increased the level and volatility of interest rates. The Fed has indicated
11 that it will follow a monetary policy designed to promote non-inflationary economic growth.

12 As background to the recent levels of interest rates, history shows that the Open Market
13 Committee of the Federal Reserve board ("FOMC") began a series of moves toward lower short-
14 term interest rates in mid-1990 -- at the outset of the previous recession. Monetary policy was
15 influenced at that time by (i) steps taken to reduce the federal budget deficit, (ii) slowing
16 economic growth, (iii) rising unemployment, and (iv) measures intended to avoid a credit crunch.
17 Thereafter, the Federal government initiated several bold proposals to deal with future
18 borrowings by the Treasury. With lower expected federal budget deficits and reduced Treasury
19 borrowings, together with limitations on the supply of new 30-year Treasury bonds, long-term
20 interest rates declined to a twenty-year low, reaching a trough of 5.78% in October 1993.

21 On February 4, 1994, the FOMC began a series of increases in the Fed Funds rate (i.e.,
22 the interest rate on excess overnight bank reserves). The initial increase represented the first rise
23 in short-term interest rates in five years. The series of seven increases doubled the Fed Funds

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1 rate to 6%. The increases in short-term interest rates also caused long-term rates to move up,
2 continuing a trend which began in the fourth quarter of 1993. The cyclical peak in long-term
3 interest rates was reached on November 7 and 14, 1994 when 30-year Treasury bonds attained an
4 8.16% yield. Thereafter, long-term Treasury bond yields generally declined.

5 Beginning in mid-February 1996, long-term interest rates moved upward from their
6 previous lows. After initially reaching a level of 6.75% on March 15, 1996, long-term interest
7 rates continued to climb and reached a peak of 7.19% on July 5 and 8, 1996. For the period
8 leading up to the 1996 Presidential election, long-term Treasury bonds generally traded within
9 this range. After the election, interest rates moderated, returning to a level somewhat below the
10 previous trading range. Thereafter, in December 1996, interest rates returned to a range of 6.5%
11 to 7.0% which existed for much of 1996.

12 On March 25, 1997, the FOMC decided to tighten monetary conditions through a one-
13 quarter percentage point increase in the Fed Funds rate. This tightening increased the Fed Funds
14 rate to 5.5%. In making this move, the FOMC stated that it was concerned by persistent strength
15 of demand in the economy, which it feared would increase the risk of inflationary imbalances
16 that could eventually interfere with the long economic expansion.

17 In the fourth quarter of 1997, the yields on Treasury bonds began to decline rapidly in
18 response to an increase in demand for Treasury securities caused by a flight to safety triggered
19 by the currency and stock market crisis in Asia. Liquidity provided by the Treasury market
20 makes these bonds an attractive investment in times of crisis. This is because Treasury securities
21 encompass a very large market which provides ease of trading and carry a premium for safety.
22 During the fourth quarter of 1997, Treasury bond yields pierced the psychologically important
23 6% level for the first time since 1993.

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1 Through the first half of 1998, the yields on long-term Treasury bonds fluctuated within a
2 range of about 5.6% to 6.1% reflecting their attractiveness and safety. In the third quarter of
3 1998, there was further deterioration of investor confidence in global financial markets. This
4 loss of confidence followed the moratorium (i.e., default) by Russia on its sovereign debt and
5 fears associated with problems in Latin America. While not significant to the global economy in
6 the aggregate, the August 17 default by Russia had a significant negative impact on investor
7 confidence, following earlier discontent surrounding the crisis in Asia. These events
8 subsequently led to a general pull back of risk-taking as displayed by banks growing reluctance
9 to lend, worries of an expanding credit crunch, lower stock prices, and higher yields on bonds of
10 riskier companies. These events contributed to the failure of the hedge fund, Long-Term Capital
11 Management.

12 In response to these events, the FOMC cut the Fed Funds rate just prior to the mid-term
13 Congressional elections. The FOMC's action was based upon concerns over how increasing
14 weakness in foreign economies would affect the U.S. economy. As recently as July 1998, the
15 FOMC had been more concerned about fighting inflation than the state of the economy. The
16 initial rate cut was the first of three reductions by the FOMC. Thereafter, the yield on long-term
17 Treasury bonds reached a 30-year low of 4.70% on October 5, 1998. Long-term Treasury yields
18 below 5% had not been seen since 1967. Unlike the first rate cut that was widely anticipated, the
19 second rate reduction by the FOMC was a surprise to the markets. A third reduction in short-
20 term interest rates occurred in November 1998 when the FOMC reduced the Fed Funds rate to
21 4.75%.

22 All of these events prompted an increase in the prices for Treasury bonds which lead to
23 the low yields described above. Another factor that contributed to the decline in yields on long-

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1 term Treasury bonds was a reduction in the supply of new Treasury issues coming to market due
2 to the Federal budget surplus -- the first in nearly 30 years. The dollar amount of Treasury bonds
3 being issued declined by 30% in two years thus resulting in higher prices and lower yields. In
4 addition, rumors of some struggling hedge funds unwinding their positions further added to the
5 gains in Treasury bond prices.

6 The financial crisis that spread from Asia to Russia and to Latin America pushed nervous
7 investors from stocks into Treasury bonds, thus increasing demand for bonds, just when supply
8 was shrinking. There was also a move from corporate bonds to Treasury bonds to take
9 advantage of appreciation in the Treasury market. This resulted in a certain amount of
10 exuberance for Treasury bond investments that formerly was reserved for the stock market.
11 Moreover, yields in the fourth quarter of 1998 became extremely volatile as shown by Treasury
12 yields that fell from 5.10% on September 29 to 4.70 percent on October 5, and thereafter
13 returned to 5.10% on October 13. A decline and rebound of 40 basis points in Treasury yields in
14 a two-week time frame is remarkable.

15 Beginning in mid-1999, the FOMC raised interest rates on six occasions reversing its
16 actions in the fall of 1998. On June 30, 1999, August 24, 1999, November 16, 1999, February 2,
17 2000, March 21, 2000, and May 16, 2000, the FOMC raised the Fed Funds rate to 6.50%. This
18 brought the Fed Funds rate to its highest level since 1991, and was 175 basis points higher than
19 the level that occurred at the height of the Asian currency and stock market crisis. At the time,
20 these actions were taken in response to more normally functioning financial markets, tight labor
21 markets, and a reversal of the monetary ease that was required earlier in response to the global
22 financial market turmoil.

23 As the year 2000 drew to a close, economic activity slowed and consumer confidence

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1 began to weaken. In two steps at the beginning and at the end of January 2001, the FOMC
2 reduced the Fed Funds rate by one percentage point. These actions brought the Fed Funds rate to
3 5.50%. The FOMC described its actions as “a rapid and forceful response of monetary policy”
4 to eroding consumer and business confidence exemplified by weaker retail sales and business
5 spending on capital equipment and cut backs in manufacturing production. Subsequently, on
6 March 20, 2001, April 18, 2001, May 15, 2001, June 27, 2001, and August 21, 2001, the FOMC
7 lowered the Fed Funds in steps consisting of three 50 basis points decrements followed by two
8 25 basis points decrements. These actions took the Fed Funds rate to 3.50%. The FOMC
9 observed on August 21, 2001:

10 “Household demand has been sustained, but business profits and
11 capital spending continue to weaken and growth abroad is
12 slowing, weighing on the U.S. economy. The associated easing of
13 pressures on labor and product markets is expected to keep
14 inflation contained.

15
16 Although long-term prospects for productivity growth and the
17 economy remain favorable, the Committee continues to believe
18 that against the background of its long-run goals of price stability
19 and sustainable economic growth and of the information currently
20 available, the risks are weighted mainly toward conditions that
21 may generate economic weakness in the foreseeable future.”
22

23 After the terrorist attack on September 11, 2001, the FOMC made two additional 50 basis points
24 reductions in the Fed Funds rate. The first reduction occurred on September 17, 2001 and
25 followed the four-day closure of the financial markets following the terrorist attacks. The second
26 reduction occurred at the October 2 meeting of the FOMC where it observed:

27 “The terrorist attacks have significantly heightened uncertainty in
28 an economy that was already weak. Business and household
29 spending as a consequence are being further damped.
30 Nonetheless, the long-term prospects for productivity growth and
31 the economy remain favorable and should become evident once

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1 the unusual forces restraining demand abate.”

2

3 Afterward, the FOMC reduced the Fed Funds rate by 50 basis points on November 6, 2001 and
4 by 25 basis points on December 11, 2001. In total, short-term interest rates were reduced by the
5 FOMC eleven (11) times during the year 2001. These actions cut the Fed Funds rate by 4.75%
6 and resulted in 1.75% for the Fed Funds rate.

7 In an attempt to deal with weakening fundamentals in the economy recovering from the
8 recession that began in March 2001, the FOMC provided a psychologically important one-half
9 percentage point reduction in the federal funds rate. The rate cut was twice as large as the
10 market expected, and brought the fed funds rate to 1.25% on November 6, 2002. The FOMC
11 stated that:

12 “The Committee continues to believe that an accommodative
13 stance of monetary policy, coupled with still-robust underlying
14 growth in productivity, is providing important ongoing support to
15 economic activity. However, incoming economic data have
16 tended to confirm that greater uncertainty, in part attributable to
17 heightened geopolitical risks, is currently inhibiting spending,
18 production, and employment. Inflation and inflation expectations
19 remain well contained.

20

21 In these circumstances, the Committee believes that today’s
22 additional monetary easing should prove helpful as the economy
23 works its way through this current soft spot. With this action, the
24 Committee believes that, against the background of its long-run
25 goals of price stability and sustainable economic growth and
26 of the information currently available, the risks are balanced
27 with respect to the prospects for both goals in the foreseeable
28 future.”

29

30 As 2003 unfolded, there was a continuing expectation of lower yields on Treasury
31 securities. In fact, the yield on ten-year Treasury notes reached a 45-year low near the end of the
32 second quarter of 2003. For long-term Treasury bonds, those yields culminated with a 4.24%

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1 yield on June 13, 2003. Soon thereafter, the FOMC reduced the Fed Funds rate by 25 basis
2 points on June 25, 2003. In announcing its action, the FOMC stated:

3 “The Committee continues to believe that an accommodative
4 stance of monetary policy, coupled with still robust underlying
5 growth in productivity, is providing important ongoing support to
6 economic activity. Recent signs point to a firming in spending,
7 markedly improved financial conditions, and labor and product
8 markets that are stabilizing. The economy, nonetheless, has yet to
9 exhibit sustainable growth. With inflationary expectations
10 subdued, the Committee judged that a slightly more expansive
11 monetary policy would add further support for an economy which
12 it expects to improve over time.”
13

14 Thereafter, intermediate and long-term Treasury yields moved marketedly higher. Higher yields
15 on long-term Treasury bonds, which exceeded 5.00% can be traced to: (i) the market’s
16 disappointment that the Fed Funds rate was not reduced below 1.00%, (ii) an indication that the
17 Fed will not use unconventional methods for implementing monetary policy, (iii) growing
18 confidence in a strengthening economy, and (iv) a Federal budget deficit that is projected to be
19 \$455 billion in 2003 (reported, subsequently, the actual deficit was \$374 billion) and \$475
20 billion in 2004 (revised subsequently, the estimated deficit is \$500 billion in 2004). All these
21 factors significantly changed the sentiment in the bond market.

22 For the remainder of 2003, the FOMC continued with its balanced monetary policy,
23 thereby retaining the 1% Fed Funds rate. However, in 2004, the FOMC initiated a policy of
24 moving toward a more neutral Fed Funds rate (i.e., removing the bias of abnormal low rates).
25 On June 30, 2004, August 10, 2004, September 21, 2004, November 10, 2004, December 14,
26 2004, February 2, 2005, March 22, 2005, May 3, 2005, June 30, 2005, August 9, 2005,
27 September 20, 2005, November 1, 2005, December 13, 2005, January 31, 2006, March 28, 2006,
28 May 10, 2006, and June 29, 2006, the FOMC increased the Fed Funds rate in seventeen 25 basis

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1 point increments. These policy actions are widely interpreted as part of the process of moving
2 toward a more neutral range for the Fed Funds rate.

3 Just after the FOMC meeting on August 7, 2007, where the FOMC decided to retain a
4 5.25% Fed Funds rate, turmoil in the credit markets prompted central banks throughout the world
5 to inject over \$325 billion of reserves into the banking system over a three-day period in reaction
6 to a credit crunch. Problems had been developing earlier in 2007, beginning in the market for
7 asset-backed securities linked to subprime mortgages. Valuation uncertainties for these
8 securities caused liquidity concerns for hedge funds, investment banks, and financial institutions.
9 The market for commercial paper, the most liquid part of the credit markets for non-Treasury
10 securities, was also affected. In response to the market turmoil, the FOMC issued the following
11 statement, the first of its type since after the September 11, 2001 terrorists' attack.

12 The Federal Reserve is providing liquidity to facilitate the
13 orderly functioning of financial markets.
14

15 The Federal Reserve will provide reserves as necessary through
16 open market operations to promote trading in the federal funds
17 market at rates close to the Federal Open Market Committee's
18 target rate of 5-1/4 percent. In current circumstances,
19 depository institutions may experience unusual funding needs
20 because of dislocations in money and credit markets. As
21 always, the discount window is available as a source of
22 funding.
23

24 Then, one week after its initial announcement, the FOMC made a surprise reduction of 50 basis
25 points in the discount rate to narrow the spread between this rate and the target Fed Funds rate.

26 At the same time, the FOMC made the following statement:

27 Financial market conditions have deteriorated, and tighter
28 credit conditions and increased uncertainty have the potential
29 to restrain economic growth going forward. In these
30 circumstances, although recent data suggest that the economy
31 has continued to expand at a moderate pace, the Federal Open

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1 Market Committee judges that the downside risks to growth
2 have increased appreciably. The Committee is monitoring the
3 situation and is prepared to act as needed to mitigate the
4 adverse effects on the economy arising from the disruptions in
5 financial markets.

6
7 Thereafter, at its regularly scheduled meeting on September 18, 2007, the FOMC reduced the
8 target Fed Funds rate to 4.75% and the discount rate was reduced to 5.25% in an effort to
9 forestall the adverse effects of the financial market turmoil on the economy generally. Further
10 reductions of 25 basis points occurred at the next two FOMC meetings on October 31, 2007 and
11 on December 11, 2007. The December 11, 2007 FOMC statement indicated that:

12 Incoming information suggests that economic growth is
13 slowing, reflecting the intensification of the housing correction
14 and some softening in business and consumer spending.
15 Moreover, strains in financial markets have increased in recent
16 weeks. Today's action, combined with the policy actions taken
17 earlier, should help promote moderate growth over time.

18
19 Readings on core inflation have improved modestly this year,
20 but elevated energy and commodity prices, among other
21 factors, may put upward pressure on inflation. In this context,
22 the Committee judges that some inflation risks remain, and it
23 will continue to monitor inflation developments carefully.

24
25 Recent developments, including the deterioration in financial
26 market conditions, have increased the uncertainty surrounding
27 the outlook for economic growth and inflation. The Committee
28 will continue to assess the effects of financial and other
29 developments on economic prospects and will act as needed to
30 foster price stability and sustainable economic growth.

31
32 With these actions, the Fed Funds rate and the discount rate closed the calendar year 2007 at
33 4.25% and 4.75%, respectively.

34 During 2008, many critical events occurred that influenced the capital markets, and hence
35 interest rates. They include: (i) the collapse of The Bear Stearns Company and its acquisition by
36 JPMorgan Chase & Co. with the aid of the Federal Reserve Bank of New York announced on

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1 March 16, 2008; (ii) the failure of IndyMac on July 11, 2008, which was at the time the third-
2 largest banking failure in U.S. history, after a “run on the bank” by depositors; (iii) the placement
3 of the government-sponsored enterprises (“GSE”) Federal National Mortgage Association
4 (Fannie Mae) and Freddie Mac into conservatorship on September 7, 2008 by the Federal
5 Housing Finance Agency; (iv) the largest bankruptcy filing in history by Lehman Brothers
6 Holding, Inc. on September 15, 2008; (v) the acquisition of the banking operations of
7 Washington Mutual, then the largest U.S. savings bank, by JPMorgan Chase on September 24,
8 2008, (Washington Mutual’s holding company subsequently filed for bankruptcy protection);
9 (vi) the rescue of Merrill Lynch & Co., Inc. by Bank of America on September 15, 2008, with
10 assistance of the Federal government; (vii) the effective nationalization on September 23, 2008,
11 of American International Group, then the world’s largest insurance company, through the
12 acquisition of 79.9% of its equity by the U.S. Treasury and (viii) other significant events
13 affecting financial markets globally. The FOMC acted decisively in response to the events
14 described above. Acting prior to its first regularly scheduled meeting in 2008, on January 22,
15 2008, the FOMC reduced the fed funds target by 75 basis points to 3.50% and the discount rate
16 was reduced by a corresponding amount to 4.00%. Actions by the FOMC between meetings are
17 unusual occurrences in recent years, thereby signifying the urgency that the FOMC saw in taking
18 immediate action on monetary policy in response to the financial crisis. Then on January 30,
19 2008, the fed funds target rate and discount rate were further reduced by 50 basis points, bringing
20 those rates to 3.00% and 3.50%, respectively. Credit market turmoil continued, and after the
21 collapse of The Bear Stearn Companies noted above, the FOMC stated:

22 The Federal Reserve on Sunday announced two initiatives
23 designed to bolster market liquidity and promote orderly

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1 market functioning. Liquid, well-functioning markets are
2 essential for the promotion of economic growth.

3
4 First, the Federal Reserve Board voted unanimously to
5 authorize the Federal Reserve Bank of New York to create a
6 lending facility to improve the ability of primary dealers to
7 provide financing to participants in securitization markets. This
8 facility will be available for business on Monday, March 17. It
9 will be in place for at least six months and may be extended as
10 conditions warrant. Credit extended to primary dealers under
11 this facility may be collateralized by a broad range of
12 investment-grade debt securities. The interest rate charged on
13 such credit will be the same as the primary credit rate, or
14 discount rate, at the Federal Reserve Bank of New York.

15
16 Second, the Federal Reserve Board unanimously approved a
17 request by the Federal Reserve Bank of New York to decrease
18 the primary credit rate from 3-1/2 percent to 3-1/4 percent,
19 effective immediately. This step lowers the spread of the
20 primary credit rate over the Federal Open Market Committee's
21 target federal funds rate to 1/4 percentage point. The Board
22 also approved an increase in the maximum maturity of primary
23 credit loans to 90 days from 30 days.

24
25 The Board also approved the financing arrangement announced
26 by JPMorgan Chase & Co. and The Bear Stearns Companies
27 Inc.

28
29 Then on March 18, 2008, the FOMC reduced the fed funds rate to 2.25% and the discount rate to
30 2.50%. Afterward on April 30, 2008, the FOMC further reduces the fed funds rate to 2.00% and
31 the discount rate to 2.25%. At subsequent meetings the FOMC held the fed funds rate steady.
32 Then on October 8, 2008, the FOMC took another unusual unscheduled action by reducing the
33 Fed Funds rate to 1.50% and the discount rate to 1.75%. Then, on October 29, the FOMC
34 lowered the Fed Funds rate to 1.00% and the discount rate to 1.25%. As 2008 ended, the FOMC
35 lowered the Fed Funds rate to a target range of 0.00% to 0.25%, its lowest rate ever. As a further
36 response to the financial crisis, Congress passed and the President signed on October 3, 2008, the
37 Emergency Economic Stabilization Act of 2008, which, among other provisions, provides the

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1 mechanism to deploy up to \$700 billion through the Troubled Asset Relief Program (“TARP”) to
2 address urgent needs created by the credit crisis the country has experienced. Then, the Federal
3 Reserve Board instituted its Commercial Paper Funding Facility (“CPFF”), which was
4 authorized on October 7, 2008, and it participated in coordinated efforts by major central banks
5 to support financial stability and to maintain flows of credit in the banking system. These
6 programs included a \$75 billion Term Auction Facility (“TAF”), a future TAF auction totaling
7 \$150 billion, and an increase to \$620 billion of swap authorizations with central banks in
8 Canada, England, Japan, Denmark, the European Union, Norway, Australia, Sweden, and
9 Switzerland. Further, on February 17, 2009, the President signed the American Recovery and
10 Reinvestment Act that committed \$789 billion by the Federal government in an effort to create
11 jobs, jumpstart growth and to transform the economy in reaction to the recession that began in
12 December 2007.

13 The FOMC maintained its target range of 0.00% to 0.25% throughout the remainder of
14 2009 and into 2010. At its November 3, 2010 meeting, the FOMC stated:

15 Information received since the Federal Open Market
16 Committee met in September confirms that the pace of
17 recovery in output and employment continues to be slow.
18 Household spending is increasing gradually, but remains
19 constrained by high unemployment, modest income growth,
20 lower housing wealth, and tight credit. Business spending on
21 equipment and software is rising, though less rapidly than
22 earlier in the year, while investment in nonresidential
23 structures continues to be weak. Employers remain reluctant
24 to add to payrolls. Housing starts continue to be depressed.
25 Longer-term inflation expectations have remained stable, but
26 measures of underlying inflation have trended lower in recent
27 quarters.

28 Consistent with its statutory mandate, the Committee seeks to
29 foster maximum employment and price stability. Currently,

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1 the unemployment rate is elevated, and measures of
2 underlying inflation are somewhat low, relative to levels that
3 the Committee judges to be consistent, over the longer run,
4 with its dual mandate. Although the Committee anticipates a
5 gradual return to higher levels of resource utilization in a
6 context of price stability, progress toward its objectives has
7 been disappointingly slow.

8 To promote a stronger pace of economic recovery and to help
9 ensure that inflation, over time, is at levels consistent with its
10 mandate, the Committee decided today to expand its holdings
11 of securities. The Committee will maintain its existing policy
12 of reinvesting principal payments from its securities
13 holdings. In addition, the Committee intends to purchase a
14 further \$600 billion of longer-term Treasury securities by the
15 end of the second quarter of 2011, a pace of about \$75 billion
16 per month. The Committee will regularly review the pace of
17 its securities purchases and the overall size of the asset-
18 purchase program in light of incoming information and will
19 adjust the program as needed to best foster maximum
20 employment and price stability.

Public Utility Bond Yields

23 The Risk Premium analysis of the cost of equity is represented by the combination of a
24 firm's borrowing rate for long-term debt capital plus a premium that is required to reflect the
25 additional risk associated with the equity of a firm as explained in Appendix H. Due to the
26 senior nature of the long-term debt of a firm, its cost is lower than the cost of equity due to the
27 prior claim, which lenders have on the earnings, and assets of a corporation.

28 As a generalization, all interest rates track to varying degrees of the benchmark yields
29 established by the market for Treasury securities. Public utility bond yields usually reflect the
30 underlying Treasury yield associated with a given maturity plus a spread to reflect the specific
31 credit quality of the issuing public utility. Market sentiment can also have an influence on the
32 spreads as described below. The spread in the yields on public utility bonds and Treasury bonds

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1 varies with market conditions, as does the relative level of interest rates at varying maturities
2 shown by the yield curve.

3 Pages 1 and 2 of Schedule 8 provide the recent history of long-term public utility bond
4 yields for the rating categories of Aa, A and Baa (no yields are shown for Aaa rated public utility
5 bonds because this index has been discontinued). The top four rating categories of Aaa, Aa, A,
6 and Baa are known as "investment grades" and are generally regarded as eligible for bank
7 investments under commercial banking regulations. These investment grades are distinguished
8 from "junk" bonds, which have ratings of Ba and below.

9 A relatively long history of the spread between the yields on long-term A-rated public
10 utility bonds and 20-year Treasury bonds is shown on page 3 of Schedule 8. There, it is shown
11 that those spreads were about one percent during the years 1994 through 1997. With the
12 aversion to risk and flight to quality described earlier, a significant widening of the spread in the
13 yields between corporate (e.g., public utility) and Treasury bonds developed in 1998, after an
14 initial widening of the spread that began in the fourth quarter of 1997. The significant widening
15 of spreads in 1998 was unexpected by some technically savvy investors, as shown by the debacle
16 at the Long-Term Capital Management hedge fund. When Russia defaulted its debt on August
17 17, some investors had to cover short positions when Treasury prices spiked upward. Short
18 covering by investors that guessed wrong on the relationship between corporate and Treasury
19 bonds also contributed to the run-up in Treasury bond prices by increasing the demand for them.
20 This helped to contribute to a widening of the spreads between corporate and Treasury bonds.

21 As shown on page 3 of Schedule 8, the spread in yields between A-rated public utility
22 bonds and 20-year Treasury bonds was about one percentage point prior to 1998, 1.32% in 1998,
23 1.42% in 1999, 2.01% in 2000, 2.13% in 2001, 1.94% in 2002, 1.62% in 2003, 1.12% in 2004,

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1 1.01% in 2005, 1.08% in 2006, 1.16% in 2007, 2.17% in 2008, and 1.93% in 2009. As shown by
2 the monthly data presented on pages 4 and 5 of Schedule 8, the interest rate spread between the
3 yields on 20-year Treasury bonds and A-rated public utility bonds was 1.39 percentage points for
4 the twelve-months ended August 2010. For the six- and three-month periods ending August
5 2010, the yield spread was 1.41% and 1.49%, respectively.

6 Beginning in August 2007, spreads widened significantly with the development of the
7 credit crisis. As the credit crisis developed, there was a flight to quality, thereby increasing
8 demand and reducing the yields on Treasury obligations. While this situation is most
9 pronounced at the shortest end of the yield curve (i.e., obligations with the shortest duration), all
10 Treasury yields display relatively low yields by reference to other credit obligations. By the end
11 of 2009, the spread in yields on A-rated public utility bonds and 20-year Treasury bonds declined
12 significantly from the peak of the credit crisis.

Risk-Free Rate of Return in the CAPM

13
14 Regarding the risk-free rate of return (see Appendix I), pages 2 and 3 of Schedule 10 provides
15 the yields on the broad spectrum of Treasury Notes and Bonds. Some practitioners of the CAPM
16 would advocate the use of short-term treasury yields (and some would argue for the yields on 91-
17 day Treasury Bills). Other advocates of the CAPM would advocate the use of longer-term
18 treasury yields as the best measure of a risk-free rate of return. As Ibbotson has indicated:

19 The Cost of Capital in a Regulatory Environment. When
20 discounting cash flows projected over a long period, it is
21 necessary to discount them by a long-term cost of capital.
22 Additionally, regulatory processes for setting rates often
23 specify or suggest that the desired rate of return for a regulated
24 firm is that which would allow the firm to attract and retain
25 debt and equity capital over the long term. Thus, the long-term
26 cost of capital is typically the appropriate cost of capital to use
27 in regulated ratesetting. (Stocks, Bonds, Bills and Inflation -

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1 1992 Yearbook, pages 118-119)
2

3 As indicated above, long-term Treasury bond yields represent the correct measure of the risk-
4 free rate of return in the traditional CAPM. Very short term yields on Treasury bills should be
5 avoided for several reasons. First, rates should be set on the basis of financial conditions that
6 will exist during the effective period of the proposed rates. Second, 91-day Treasury bill yields
7 are more volatile than longer-term yields and are greatly influenced by FOMC monetary policy,
8 political, and economic situations. Moreover, Treasury bill yields have been shown to be
9 empirically inadequate for the CAPM. Some advocates of the theory would argue that the risk-
10 free rate of return in the CAPM should be derived from quality long-term corporate bonds. To
11 take a balanced approach to the risk-free rate of return, the yield on long-term Treasury bonds
12 has been used for this purpose.

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RISK PREMIUM ANALYSIS

The cost of equity requires recognition of the risk premium required by common equities over long-term corporate bond yields. In the case of senior capital, a company contracts for the use of long-term debt capital at a stated coupon rate for a specific period of time and in the case of preferred stock capital at a stated dividend rate, usually with provision for redemption through sinking fund requirements. In the case of senior capital, the cost rate is known with a high degree of certainty because the payment for use of this capital is a contractual obligation, and the future schedule of payments is known. In essence, the investor-expected cost of senior capital is equal to the realized return over the entire term of the issue, absent default.

The cost of equity, on the other hand, is not fixed, but rather varies with investor perception of the risk associated with the common stock. Because no precise measurement exists as to the cost of equity, informed judgment must be exercised through a study of various market factors which motivate investors to purchase common stock. In the case of common equity, the realized return rate may vary significantly from the expected cost rate due to the uncertainty associated with earnings on common equity. This uncertainty highlights the added risk of a common equity investment.

As one would expect from traditional risk and return relationships, the cost of equity is affected by expected interest rates. As noted in Appendix G, yields on long-term corporate bonds traditionally consist of a real rate of return without regard to inflation, an increment to reflect investor perception of expected future inflation, the investment horizon shown by the term of the issue until maturity, and the credit risk associated with each rating category.

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1 The Risk Premium approach recognizes the required compensation for the more risky
2 common equity over the less risky secured debt position of a lender. The cost of equity stated in
3 terms of the familiar risk premium approach is:

$$k=i+RP$$

5 where, the cost of equity (" k ") is equal to the interest rate on long-term corporate debt (" i "), plus
6 an equity risk premium (" RP ") which represents the additional compensation for the riskier
7 common equity.

Equity Risk Premium

9 The equity risk premium is determined as the difference in the rate of return on debt
10 capital and the rate of return on common equity. Because the common equity holder has only a
11 residual claim on earnings and assets, there is no assurance that achieved returns on common
12 equities will equal expected returns. This is quite different from returns on bonds, where the
13 investor realizes the expected return during the entire holding period, absent default. It is for this
14 reason that common equities are always more risky than senior debt securities. There are
15 investment strategies available to bond portfolio managers that immunize bond returns against
16 fluctuations in interest rates because bonds are redeemed through sinking funds or at maturity,
17 whereas no such redemption is mandated for public utility common equities.

18 It is well recognized that the expected return on more risky investments will exceed the
19 required yield on less risky investments. Neither the possibility of default on a bond nor the
20 maturity risk detracts from the risk analysis, because the common equity risk rate differential
21 (i.e., the investor-required risk premium) is always greater than the return components on a bond.
22 It should also be noted that the investment horizon is typically long-run for both corporate debt

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1 and equity, and that the risk of default (i.e., corporate bankruptcy) is a concern to both debt and
2 equity investors. Thus, the required yield on a bond provides a benchmark or starting point with
3 which to track and measure the cost rate of common equity capital. There is no need to segment
4 the bond yield according to its components, because it is the total return demanded by investors
5 that is important for determining the risk rate differential for common equity. This is because the
6 complete bond yield provides the basis to determine the differential, and as such, consistency
7 requires that the computed differential must be applied to the complete bond yield when applying
8 the risk premium approach. To apply the risk rate differential to a partial bond yield would result
9 in a misspecification of the cost of equity because the computed differential was initially
10 determined by reference to the entire bond return.

11 The risk rate differential between the cost of equity and the yield on long-term corporate
12 bonds can be determined by reference to a comparison of holding period returns (here defined as
13 one year) computed over long time spans. This analysis assumes that over long periods of time
14 investors' expectations are on average consistent with rates of return actually achieved.
15 Accordingly, historical holding period returns must not be analyzed over an unduly short period
16 because near-term realized results may not have fulfilled investors' expectations. Moreover,
17 specific past period results may not be representative of investment fundamentals expected for
18 the future. This is especially apparent when the holding period returns include negative returns
19 which are not representative of either investor requirements of the past or investor expectations
20 for the future. The short-run phenomenon of unexpected returns (either positive or negative)
21 demonstrates that an unduly short historical period would not adequately support a risk premium
22 analysis. It is important to distinguish between investors' motivation to invest, which encompass

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1 positive return expectations, and the knowledge that losses can occur. No rational investor
2 would forego payment for the use of capital, or expect loss of principal, as a basis for investing.
3 Investors will hold cash rather than invest with the expectation of a loss.

4 Within these constraints, page 1 of Schedule 9 provides the historical holding period
5 returns for the S&P Public Utility Index which has been independently computed and the
6 historical holding period returns for the S&P Composite Index which have been reported in
7 Stocks, Bonds, Bills and Inflation published by Ibbotson & Associates. The tabulation begins
8 with 1928 because January 1928 is the earliest monthly dividend yield for the S&P Public Utility
9 Index. I have considered all reliable data for this study to avoid the introduction of a particular
10 bias to the results. The measurement of the common equity return rate differential is based upon
11 actual capital market performance using realized results. As a consequence, the underlying data
12 for this risk premium approach can be analyzed with a high degree of precision. Informed
13 professional judgment is required only to interpret the results of this study, but not to quantify
14 the component variables.

15 The risk rate differentials for all equities, as measured by the S&P Composite, are
16 established by reference to long-term corporate bonds. For public utilities, the risk rate
17 differentials are computed with the S&P Public Utilities as compared with public utility bonds.

18 The measurement procedure used to identify the risk rate differentials consisted of
19 arithmetic means, geometric means, and medians for each series. Measures of the central
20 tendency of the results from the historical periods provide the best indication of representative
21 rates of return. In regulated ratesetting, the correct measure of the equity risk premium is the
22 arithmetic mean because a utility must expect to earn its cost of capital in each year in order to

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1 provide investors with their long-term expectations. In other contexts, such as pension
2 determinations, compound rates of return, as shown by the geometric means, may be appropriate.
3 The median returns are also appropriate in ratesetting because they are a measure of the central
4 tendency of a single period rate of return. Median values have also been considered in this
5 analysis because they provide a return which divides the entire series of annual returns in half
6 and are representative of a return that symbolizes, in a meaningful way, the central tendency of
7 all annual returns contained within the analysis period. Medians are regularly included in many
8 investor-influencing publications.

9 As previously noted, the arithmetic mean provides the appropriate point estimate of the
10 risk premium. As further explained in Appendix I, the long-term cost of capital in rate cases
11 requires the use of the arithmetic means. To supplement my analysis, I have also used the rates
12 of return taken from the geometric mean and median for each series to provide the bounds of the
13 range to measure the risk rate differentials. This further analysis shows that when selecting the
14 midpoint from a range established with the geometric means and medians, the arithmetic mean is
15 indeed a reasonable measure for the long-term cost of capital. For the years 1928 through 2007,
16 the risk premiums for each class of equity are:

	<u>S&P Composite</u>	<u>S&P Public Utilities</u>
Arithmetic Mean	<u>5.82%</u>	<u>5.52%</u>
Geometric Mean	4.23%	3.47%
Median	<u>9.27%</u>	<u>7.50%</u>
Midpoint of Range	<u>6.75%</u>	<u>5.49%</u>
Average of Arithmetic Mean and Midpoint of Range	<u>6.29%</u>	<u>5.51%</u>

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1 The empirical evidence suggests that the common equity risk premium is higher for the S&P
2 Composite Index compared to the S&P Public Utilities.

3 If, however, specific historical periods were also analyzed in order to match more closely
4 historical fundamentals with current expectations, the results provided on page 2 of Schedule 9
5 should also be considered. One of these sub-periods included the 56-year period, 1952-2007.
6 These years follow the historic 1951 Treasury-Federal Reserve Accord which affected monetary
7 policy and the market for government securities.

8 A further investigation was undertaken to determine whether realignment has taken place
9 subsequent to the historic 1973 Arab Oil embargo and during the deregulation of the financial
10 markets. In each case, the public utility risk premiums were computed by using the arithmetic
11 mean, and the geometric means and medians to establish the range shown by those values. The
12 time periods covering the more recent periods 1974 through 2007 and 1979 through 2007 contain
13 events subsequent to the initial oil shock and the advent of monetarism as Fed policy,
14 respectively. For the 56-year, 34-year and 29-year periods, the public utility risk premiums were
15 6.58%, 6.08%, and 6.37% respectively, as shown by the average of the specific point-estimates
16 and the midpoint of the ranges provided on page 2 of Schedule 9.

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CAPITAL ASSET PRICING MODEL

Modern portfolio theory provides a theoretical explanation of expected returns on portfolios of securities. The Capital Asset Pricing Model ("CAPM") attempts to describe the way prices of individual securities are determined in efficient markets where information is freely available and is reflected instantaneously in security prices. The CAPM states that the expected rate of return on a security is determined by a risk-free rate of return plus a risk premium which is proportional to the non-diversifiable (or systematic) risk of a security.

The CAPM theory has several unique assumptions that are not common to most other methods used to measure the cost of equity. As with other market-based approaches, the CAPM is an expectational concept. There has been significant academic research conducted that found that the empirical market line, based upon historical data, has a less steep slope and higher intercept than the theoretical market line of the CAPM. For equities with a beta less than 1.0, such as utility common stocks, the CAPM theoretical market line will underestimate the realistic expectation of investors in comparison with the empirical market line which shows that the CAPM may potentially misspecify investors' required return.

The CAPM considers changing market fundamentals in a portfolio context. The balance of the investment risk, or that characterized as unsystematic, must be diversified. Some argue that diversifiable (unsystematic) risk is unimportant to investors. But this contention is not completely justified because the business and financial risk of an individual company, including regulatory risk, are widely discussed within the investment community and therefore influence investors in regulated firms. In addition, I note that the CAPM assumes that through portfolio diversification, investors will minimize the effect of the unsystematic (diversifiable) component

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1 of investment risk. Because it is not known whether the average investor holds a well-diversified
2 portfolio, the CAPM must also be used with other models of the cost of equity.

3 To apply the traditional CAPM theory, three inputs are required: the beta coefficient
4 (β), a risk-free rate of return (R_f), and a market premium ($R_m - R_f$). The cost of equity
5 stated in terms of the CAPM is:

$$6 \quad k = R_f + \beta (R_m - R_f)$$

7 As previously indicated, it is important to recognize that the academic research has
8 shown that the security market line was flatter than that predicted by the CAPM theory and it had
9 a higher intercept than the risk-free rate. These tests indicated that for portfolios with betas less
10 than 1.0, the traditional CAPM would understate the return for such stocks. Likewise, for
11 portfolios with betas above 1.0, these companies had lower returns than indicated by the
12 traditional CAPM theory. Once again, CAPM assumes that through portfolio diversification
13 investors will minimize the effect of the unsystematic (diversifiable) component of investment
14 risk. Therefore, the CAPM must also be used with other models of the cost of equity, especially
15 when it is not known whether the average public utility investor holds a well-diversified
16 portfolio.

17 Beta

18 The beta coefficient is a statistical measure which attempts to identify the non-
19 diversifiable (systematic) risk of an individual security and measures the sensitivity of rates of
20 return on a particular security with general market movements. Under the CAPM theory, a
21 security that has a beta of 1.0 should theoretically provide a rate of return equal to the return rate
22 provided by the market. When employing stock price changes in the derivation of beta, a stock

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1 with a beta of 1.0 should exhibit a movement in price which would track the movements in the
2 overall market prices of stocks. Hence, if a particular investment has a beta of 1.0, a one percent
3 increase in the return on the market will result, on average, in a one percent increase in the return
4 on the particular investment. An investment which has a beta less than 1.0 is considered to be
5 less risky than the market.

6 The beta coefficient (" β "), the one input in the CAPM application which specifically
7 applies to an individual firm, is derived from a statistical application which regresses the returns
8 on an individual security (dependent variable) with the returns on the market as a whole
9 (independent variable). The beta coefficients for utility companies typically describe a small
10 proportion of the total investment risk because the coefficients of determination (R^2) are low.

11 Page 1 of Schedule 10 provides the betas published by Value Line. By way of
12 explanation, the Value Line beta coefficient is derived from a "straight regression" based upon
13 the percentage change in the weekly price of common stock and the percentage change weekly
14 of the New York Stock Exchange Composite average using a five-year period. The raw
15 historical beta is adjusted by Value Line for the measurement effect resulting in overestimates in
16 high beta stocks and underestimates in low beta stocks. Value Line then rounds its betas to the
17 nearest .05 increment. Value Line does not consider dividends in the computation of its betas.

18 Market Premium

19 The final element necessary to apply the CAPM is the market premium. The market
20 premium by definition is the rate of return on the total market less the risk-free rate of return
21 (" $R_m - R_f$ "). In this regard, the market premium in the CAPM has been calculated from the total
22 return on the market of equities using forecast and historical data. The future market return is

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1 established with forecasts by Value Line using estimated dividend yields and capital appreciation
2 potential.

3 With regard to the forecast data, I have relied upon the Value Line forecasts of capital
4 appreciation and the dividend yield on the 1,700 stocks in the Value Line Survey. According to
5 the August 27, 2010 edition of The Value Line Investment Survey Summary and Index, (see
6 page 5 of Schedule 12) the total return on the universe of Value Line equities is:

	<u>Dividend Yield</u>	<u>Median Appreciation Potential</u>	<u>Median Total Return</u>
As of August 27, 2010	2.2% +	15.02% ⁽¹⁾	= 17.22%

7 The tabulation shown above provides the dividend yield and capital gains yield of the companies
8 followed by Value Line. Another measure of the total market return is provided by the DCF
9 return on the S&P 500 Composite index. That return is shown below.

DCF Result for the S&P 500 Composite					
D/P	(1+.5g) +	g	= k
2.13%	(1.0542) +	10.84%	= 13.09%
where:	Price (P)	at	31-Aug-2010	=	1049.33
	Dividend (D)	for	2nd Qtr. '10	=	5.58
	Dividend (D)		annualized	=	22.32
	Growth (g)		First Call EpS	=	10.84%

10 Using these indicators, the total market return is 15.16% (17.22% + 13.09% = 30.31% ÷ 2)
11 using both the Value Line and S&P derived returns. With the 15.16% forecast market return and
12 the 4.50% risk-free rate of return, a 10.66% (15.16% - 4.50%) market premium would be

¹The estimated median appreciation potential is forecast to be 75% for 3 to 5 years hence. The annual capital gains yield at the midpoint of the forecast period is 15.02% (i.e., $1.75^{.25} - 1$).

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1 indicated using forecast market data.

2 I have also provided market premiums that have been widely circulated among the
3 investment and academic community, which today is published by Morningstar, Inc. These data
4 are contained in the 2009 Ibbotson® Stocks, Bonds, Bills and Inflation ("SBBI") Classic
5 Yearbook. From the data provided on page 6 of Schedule 10, I calculate a market premium
6 using the historical common stock arithmetic mean returns of 11.7% less government bond
7 arithmetic mean returns of 6.1%. For the period 1926-2008, the market premium was 5.6%
8 (11.7% - 6.1%). I should note that the arithmetic mean must be used in the CAPM because it is a
9 single period model. It is further confirmed by Ibbotson who has indicated:

10 *Arithmetic Versus Geometric Differences*

11 For use as the expected equity risk premium in the CAPM, the
12 *arithmetic* or *simple difference* of the *arithmetic* means of stock
13 market returns and riskless rates is the relevant number. This is
14 because the CAPM is an additive model where the cost of capital
15 is the sum of its parts. Therefore, the CAPM expected equity
16 risk premium must be derived by arithmetic, *not geometric*,
17 subtraction.

18 *Arithmetic Versus Geometric Means*

19 The expected equity risk premium should always be calculated
20 using the arithmetic mean. The arithmetic mean is the rate of
21 return which, when compounded over multiple periods, gives the
22 mean of the probability distribution of ending wealth values.
23 This makes the arithmetic mean return appropriate for
24 computing the cost of capital. The discount rate that equates
25 expected (mean) future values with the present value of an
26 investment is that investment's cost of capital. The logic of
27 using the discount rate as the cost of capital is reinforced by
28 noting that investors will discount their (mean) ending wealth
29 values from an investment back to the present using the
30 arithmetic mean, for the reason given above. They will therefore
31 require such an expected (mean) return prospectively (that is, in
32 the present looking toward the future) to commit their capital to
33 the investment. (Stocks, Bonds, Bills and Inflation - 1996
34 Yearbook, pages 153-154)
35

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1 Also shown on page 6 of Schedule 12 is the long-horizon expected market premiums of
2 6.5% also published in the SBBI Classic Yearbook. An average of the historical and expected
3 SBBI market premium is 6.05% ($5.6\% + 6.5\% = 12.1\% \div 2$).

4 For the CAPM, a market premium of 8.36% ($6.05\% + 10.66\% = 16.71\% \div 2$) would be
5 reasonable which is the average of the 6.05%% using historical data and a market premium of
6 6.69% using forecasts.

COMPARABLE EARNINGS APPROACH

Value Line's analysis of the companies that it follows includes a wide range of financial and market variables, including nine items that provide ratings for each company. From these nine items, one category has been removed dealing with industry performance because, under the approach employed, the particular business type is not significant. In addition, two categories have been ignored that deal with estimates of current earnings and dividends because they are not useful for comparative purposes. The remaining six categories provide relevant measures to establish comparability. The definitions for each of the six criteria (from the Value Line Investment Survey - Subscriber Guide) follow:

Timeliness Rank

The rank for a stock's probable relative market performance in the year ahead. Stocks ranked 1 (Highest) or 2 (Above Average) are likely to outpace the year-ahead market. Those ranked 4 (Below Average) or 5 (Lowest) are not expected to outperform most stocks over the next 12 months. Stocks ranked 3 (Average) will probably advance or decline with the market in the year ahead. Investors should try to limit purchases to stocks ranked 1 (Highest) or 2 (Above Average) for Timeliness.

Safety Rank

A measure of potential risk associated with individual common stocks rather than large diversified portfolios (for which Beta is good risk measure). Safety is based on the stability of price, which includes sensitivity to the market (see Beta) as well as the stock's inherent volatility, adjusted for trend and other factors including company size, the penetration of its markets, product market volatility, the degree of financial leverage, the earnings quality, and the overall condition of the balance sheet. Safety Ranks range from 1 (Highest) to 5 (Lowest). Conservative investors should try to limit purchases to equities ranked 1 (Highest) or 2 (Above Average) for Safety.

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Financial Strength

The financial strength of each of the more than 1,600 companies in the VS II data base is rated relative to all the others. The ratings range from A++ to C in nine steps. (For screening purposes, think of an A rating as "greater than" a B). Companies that have the best relative financial strength are given an A++ rating, indicating an ability to weather hard times better than the vast majority of other companies. Those who don't quite merit the top rating are given an A+ grade, and so on. A rating as low as C++ is considered satisfactory. A rating of C+ is well below average, and C is reserved for companies with very serious financial problems. The ratings are based upon a computer analysis of a number of key variables that determine (a) financial leverage, (b) business risk, and (c) company size, plus the judgment of Value Line's analysts and senior editors regarding factors that cannot be quantified across-the-board for companies. The primary variables that are indexed and studied include equity coverage of debt, equity coverage of intangibles, "quick ratio", accounting methods, variability of return, fixed charge coverage, stock price stability, and company size.

Price Stability Index

An index based upon a ranking of the weekly percent changes in the price of the stock over the last five years. The lower the standard deviation of the changes, the more stable the stock. Stocks ranking in the top 5% (lowest standard deviations) carry a Price Stability Index of 100; the next 5%, 95; and so on down to 5. One standard deviation is the range around the average weekly percent change in the price that encompasses about two thirds of all the weekly percent change figures over the last five years. When the range is wide, the standard deviation is high and the stock's Price Stability Index is low.

Beta

A measure of the sensitivity of the stock's price to overall fluctuations in the New York Stock Exchange Composite Average. A Beta of 1.50 indicates that a stock tends to rise (or fall) 50% more than the New York Stock Exchange Composite Average. Use Beta to measure the stock market risk inherent in any diversified portfolio of, say, 15 or more companies. Otherwise, use the Safety Rank, which measures total risk

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1 inherent in an equity, including that portion attributable to
2 market fluctuations. Beta is derived from a least squares
3 regression analysis between weekly percent changes in the price
4 of a stock and weekly percent changes in the NYSE Average
5 over a period of five years. In the case of shorter price histories,
6 a smaller time period is used, but two years is the minimum.
7 The Betas are periodically adjusted for their long-term tendency
8 to regress toward 1.00.
9

10 Technical Rank

11
12 A prediction of relative price movement, primarily over the next
13 three to six months. It is a function of price action relative to all
14 stocks followed by Value Line. Stocks ranked 1 (Highest) or 2
15 (Above Average) are likely to outpace the market. Those ranked
16 4 (Below Average) or 5 (Lowest) are not expected to outperform
17 most stocks over the next six months. Stocks ranked 3
18 (Average) will probably advance or decline with the market.
19 Investors should use the Technical and Timeliness Ranks as
20 complements to one another.

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GLOSSARY OF ACRONYMS AND DEFINED TERMS	
ACRONYM	DEFINED TERM
AFUDC	Allowance for Funds Used During Construction
β	Beta
b	represents the retention rate that consists of the fraction of earnings that are not paid out as dividends
$b \times r$	Represents internal growth
CAA	Clean Air Act
CAPM	Capital Asset Pricing Model
CCR	Corporate Credit Rating
D	Debt ratio
DCF	Discounted Cash Flow
d	Dividend rate on preferred stock
FERC	Federal Energy Regulatory Commission
FOMC	Federal Open Market Committee
g	Growth rate
GDP	Gross Domestic Product
IGF	Internally Generated Funds
LT	Long Term
M&A	Merger and acquisition
MLP	Master Limited Partnerships
P-E	Price earnings
P	Preferred stock
PUHC	Public Utility Holding Company
r	represents the expected rate of return on common equity
R_f	Risk-free rate of return
R_m	Market risk premium

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GLOSSARY OF ACRONYMS AND DEFINED TERMS	
ACRONYM	DEFINED TERM
RP	Risk Premium
s	Represents the new common shares expected to be issued by a firm
$s \times v$	Represents external growth
S&P	Standard & Poor's
v	represents the value that accrues to existing shareholders from selling stock at a price different from book value